

Report to the Legislature:
Five-Year Plan for the Waste Tire Recycling Management Program
(Ninth Edition Covering Fiscal Years 2017–18 to 2021–22)



California Department of Resources Recycling and Recovery

July 2017

S T A T E O F C A L I F O R N I A

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Introduction

Senate Bill (SB) 876 (Escutia, Statutes of 2000, Chapter 838) was enacted to provide a comprehensive measure to extend and expand California's regulatory program related to the management of waste and used tires. One of the key provisions of this measure requires the Department of Resources Recycling and Recovery (CalRecycle) to adopt and submit to the legislature a Five-Year Plan (Plan) that included proposed budget allocations. In addition, it requires that the Plan be updated every two years.

CalRecycle's goal, although not codified in statute, is that 75 percent of waste tires be recycled by the year 2020. Affiliated goals include the following:

- Developing long-term, sustainable, and diversified market demand for California tire-derived products;
- Ensuring the protection of public health, safety, and the environment while developing a safe and high-quality supply infrastructure to meet that demand; and
- Fostering information flow and technology and product development so environmental protection and diversion goals are achieved with supply and demand in balance.

In the previous plan (Eight Edition, July 2015), CalRecycle outlined a vision for the future that would focus on increasing the recycling rate rather than just the diversion rate. This vision is included below but would require new legislation and programs, so this edition of the plan continues to focus on existing programs.

The enforcement elements of the Waste Tire Recycling Management Program are designed not only to protect public health, safety, and the environment but also to provide for a fair and consistent marketplace for recycled tires. CalRecycle has moved aggressively to expand tire enforcement efforts and revise current regulations.

Our enforcement staff provides technical assistance and training to the regulated community that includes tire haulers, tire generators, and permitted tire facilities. However, if a business demonstrates an unwillingness to comply and is not responsive to technical assistance and training, then CalRecycle initiates enforcement action. Tire facility permitting, coupled with expanded and robust statewide enforcement efforts, is working to ensure a level playing field for tire facilities, haulers, and generators who operate within the law.

With respect to diversion and market development, after reaching an all-time high of 92.9 percent diversion in 2012 (and exceeding CalRecycle's previous 90 percent diversion goal), the overall waste tire diversion rate decreased to 80.9% in 2015. The recycling rate remains stagnant, just under 40 percent.

Tire disposal increased in 2015 to 19.1 percent from an all-time low in 2012 of 7.3 percent of all tires.¹ Waste tire exports also are very dynamic. The increase in exports in 2012 was mainly a result of the continued, unprecedented rapid growth in the export of waste tires to Pacific Rim nations, largely for use as tire-derived fuel (TDF), which is now the largest end-use destination for California waste tires. And while exports decreased in 2015 due to prices for fossil fuels declining markedly, which in turn pushed pricing and demand for imported waste tire bales and processed tire-derived fuel downward, they were on the rebound in 2016.

CalRecycle's current market development programs continue to focus on increasing the processing of California waste tires into California-produced tire-derived products. To move closer to this goal, CalRecycle implemented a small tire incentive program. This program provides economic incentives to participating manufacturers to increase sales to businesses. While many stakeholders would prefer a free-market system with no subsidies, CalRecycle's perspective is that subsidies will continue to be needed to establish markets for products that incorporate waste tires into end uses such as paving, molded products, retaining walls, etc. As a corollary, CalRecycle continues to believe that a variety of markets that use California-produced products is preferable, rather than focusing on only one primary market, even if the cost per tire varies among these end uses. This approach is consistent with CalRecycle's policy goal that 75 percent of the solid waste generated in the state be source-reduced, recycled, or composted by 2020.

Vision for the Future

For years, CalRecycle has relied on a variety of grant programs, along with focused research, technical support, and outreach as the bulwark of its market development efforts. While these efforts have been successful in expanding markets and helping businesses to increase production and/or develop new products, the facts speak to the need to reassess this fundamental market development approach. In particular, the tire recycling rate—i.e., for activities that result in use of waste tires to produce marketable products (as opposed to exports or use as ADC)—has hovered for years around 40 percent. It is only because of exports and ADC end use, along with use of TDF for energy recovery, that the total diversion rate has reached into the 90 percent range. In accord with implementing AB 341's 75 percent recycling goal, and CalRecycle's complementary focus on handling waste materials within California in an environmentally safe manner and on generating jobs within the State, CalRecycle suggests the following long-term vision for the future of tire recycling in California. This vision will require legislative changes.²

¹ [California Waste Tire Market Report: 2015](#)

² Another alternative is to consider an Extended Producer Responsibility (EPR) approach; the applicability of this policy approach for tires was discussed by CalRecycle in a 2012 contractor report and workshop. CalRecycle oversees other EPR programs and could assess legislative proposals for a tire EPR program. However, to date the Legislature has not broached this concept for tires and instead has retained the current fee-based approach with programs being administered by the state. CalRecycle therefore is suggesting an incentive-based approach in the context of the existing tire fee-based approach.

The primary change would be to implement an expanded incentive program that provides payments for desired end uses of tires. This could entail differential incentive payment rates, with higher payments for preferred end uses such as incorporation of crumb rubber into rubberized asphalt concrete; moderate payments for end uses such as use of tire-derived aggregate in retaining walls, and low payment rates for less-preferred but still non-disposal uses such as energy recovery (which, while not recycling, still allows for capture of the energy content in tires). This approach focuses on creating demand by assisting manufacturers in covering the costs of marketing their products against competing non-recycled products; it is modeled after similar incentive programs such as the Beverage Container Recycling Program's plastic market development payments. In order to be effective and reach as high a recycling rate as possible, such a program would require on the order of tens of millions of dollars per year, an amount that is currently not available from the Tire Recycling Management Fund given the need to devote funding to enforcement, the manifest system, and administrative costs. This approach would not include payments to processors for the production of material, as that would likely create an oversupply of material and result in downward pricing. However, it could include requiring processors to be responsible for ensuring that tires are appropriately collected and providing a small incremental payment so that processors could pay haulers depending on the distance traveled.

This primary change will require the following legislative changes:

- 1) Increase the fee for new tires to provide the necessary funding support for the incentive payments.
- 2) Allow generators such as tire shops and dealers to charge a small administrative fee for assessing the State's tire fee, but not to charge additional fees for handling/disposal of tires.
- 3) Repeal the rubberized pavement grant mandate since this use would be covered by the incentive payments.
- 4) Eliminate most of the existing market development grant programs, as these would be replaced by the incentive payments.
- 5) Continuously appropriate tire funds to provide continuity to programs across fiscal years.

Implementation of this vision would significantly change waste tire management and markets in California and have ripple effects far beyond the state's border. Many details would have to be vetted before making such a paradigm shift, including the timing of such a shift, appropriate funding levels, how to ensure a sustainable market, and whether and how to reduce or eliminate other incentives/subsidies for various products and markets. With respect to details of the incentive payment approach proposed by CalRecycle, one fundamental question is where any incentive payments should be targeted. CalRecycle's proposal focuses on payments to manufacturers, but CalRecycle recognizes that other variations are worth considering as well, e.g., the suggestion to provide payments to state and local agencies for use of RAC and other products.

Other legislative changes that could augment this approach include:

- 1) Mandate that State agencies, universities/colleges, and local governments procure tire-derived products, where such products meet specifications and are economically feasible.
- 2) Prohibit, with a phased-in ban over a reasonable time period and if sufficient processing capacity is available, tire disposal and the use of tire-related ADC.
- 3) Require that waste tires be processed with at least a minimal level of shredding to discourage disposal and to ensure an adequate supply of processed tires for recycling.
- 4) Support source reduction by requiring a minimum tire life of 60,000 miles. Tires meeting this standard would be subject to the normal new tire fee, while tires with a lower life would be subject to higher fees.

As part of this long-term approach, CalRecycle also would propose to increase supporting research, consider consolidating its tire cleanup grant programs into a more efficient set of programs, eliminate some market development grant programs, and provide for the required emergency reserve through an escrow account or contract. It would continue the current level of support for inspection and enforcement activities, the hauler manifest system, market trend analysis and targeted outreach, and consolidated technical support for rubberized asphalt concrete and tire-derived aggregate projects.

Program Elements

The Five-Year Plan is divided into the program elements identified in Public Resources Code section 42885.5(b). These elements are:

- Enforcement and Regulations Relating to the Storage of Waste and Used Tires.
- Waste and Used Tire Hauler Program and Manifest System.
- Cleanup, Abatement, or Other Remedial Actions Related to Tire Stockpiles Throughout the State.
- Research Directed at Promoting and Developing Alternatives to the Landfill Disposal of Tires.
- Market Development and New Technology Activities for Waste and Used Tires.

Each of the program elements consists of five sections:

1. *Program Background and Status.* This section includes background information, a summary of achievements, and an overview of planned activities.
2. *Direction Provided by SB 876.* This section lists the specific statutory language that directs the particular program element.
3. *Objectives.* This section lists the objectives the program element is designed to achieve.
4. *Performance Measures.* This section identifies how individual or groups of related element activities can be measured to show how well objectives and goals are met.
5. *Activity Description and Budget.* This section includes an overall chart of element activities and describes each activity with associated budget information by fiscal year.

Most of the changes suggested above will, as noted, require legislative change. In the interim and in this Five-Year Plan, the major changes would entail continued research (e.g., Caltrans specification development, landfill tire-related emissions, potential effects of recycled tire rubber, tire-derived products and non-highway technologies using waste tires, and feedstock conversion assistance and material testing), and consolidation of market development technical support activities. As with the longer-term vision, CalRecycle would continue current levels of support for other activities such as inspection and enforcement, hauler manifest system, market analysis, etc.

Budget and Summary

The ninth edition of the Five-Year Plan presents the following budget for CalRecycle's tire program for Fiscal Years 2017–18 through 2021–22. The proposed expenditures reflect the spending authority limit for the tire program as outlined in the Governor's Budget.

Table 1: Total Tire Program Funding for Fiscal Years 2017–18–2021–22

Program Areas	FY 2017–18	FY 2018–19	FY 2019–20	FY 2020–21	FY 2021–22	Totals for All Fiscal Years
Enforcement	\$7,085,000	\$7,085,000	\$7,085,000	\$7,085,000	\$7,085,000	\$35,425,000
Hauler Program and Manifest System	\$450,000	\$450,000	\$450,000	\$450,000	\$450,000	\$2,250,000
Cleanup*	\$7,619,916	\$7,600,000	\$7,450,000	\$7,500,000	\$7,450,000	\$37,619,916
Research and Market Development	\$16,673,084	\$16,693,000	\$11,843,000	\$11,793,000	\$11,843,000	\$68,845,084
Program Staffing and Administration	\$7,725,000	\$7,725,000	\$7,725,000	\$7,725,000	\$7,725,000	\$38,625,000
Administration	\$3,422,000	\$3,422,000	\$3,422,000	\$3,422,000	\$3,422,000	\$17,110,000
Mandatory Contracts	\$1,288,000	\$1,288,000	\$1,288,000	\$1,288,000	\$1,288,000	\$6,440,000
Totals	\$44,263,000	\$44,263,000	\$39,263,000	\$39,263,000	\$39,263,000	\$206,315,000
Spending Authority	\$44,263,000	\$44,263,000	\$39,263,000	\$39,263,000	\$39,263,000	\$206,315,000

* The cleanup element includes the Farm and Ranch Solid Waste Cleanup and Abatement Grant Program. Its spending authority is separate from the Tire Fund's spending authority.

Enforcement and Regulations Relating to the Storage of Waste and Used Tires

Enforcement Program Background and Status

The Waste Tire Enforcement Program's primary goal is to manage and mitigate the impacts of tires on public health and safety, and the environment, by ensuring that tire businesses comply with tire permitting, storage, and movement laws, regulations, and state minimum standards. Compliance is monitored through integrated and consistent permitting, inspection, and enforcement efforts. CalRecycle works closely with state and local governments to:

- Inspect tire businesses for compliance with permitting, storage, and movement laws, regulations, and state minimum standards;
- Educate tire businesses and property owners about tire laws and regulations;
- Look for illegal dumping, storage, and movement of tires; and
- Take enforcement actions as needed to correct violations.

CalRecycle's Waste Tire Enforcement Program is closely aligned and cooperatively administered with other cleanup-related components in the Five-Year Plan. For example, enforcement actions against the largest known waste tire sites in Sonoma County resulted in negotiated settlements with cleanups administered by CalRecycle's Cleanup Branch. Vigorous waste tire enforcement pursuant to CalRecycle's policy goals minimizes the chances for large tire sites to develop and to go unaddressed and for subsequent environmental crises such as tire fires like those that occurred in the late 1990s in Westley and Tracy. The costs for long-term remediation as part of the Five-Year Plan's Cleanup and Remediation element have been significantly reduced and are expected to continue to be positively impacted in future years.

The Tire Enforcement Branch and the Cleanup Branch cooperate with the Financial Resources Management (FiRM) Branch on the administration of the Farm and Ranch Solid Waste Cleanup and Abatement, Local Government Amnesty, Local Government Waste Tire Cleanup and Local Conservation Corps grant programs. For example, when enforcement staff discovers waste tire piles on privately owned agricultural property, and the tire piles are determined not to be the responsibility of the landowner, the Tire Enforcement Branch brings them to the attention of the FiRM Branch staff for potential grant funding consideration. Conversely, grant applications for Farm and Ranch grants, which are independently received, for which landowner certifications of non-responsibility cannot be obtained, are referred to the Tire Enforcement Branch for appropriate follow-up. Over time, concerted enforcement action to reduce illegal waste tire disposal is expected to reduce the need for tire cleanup grant funds.

The Tire Enforcement Branch coordinates with the FiRM Branch to implement the Local Government Waste Tire Enforcement (TEA) Grant Program that supports the activities of local jurisdictions in CalRecycle's waste tire enforcement efforts and also coordinates with and provides support for CalRecycle's illegal dumping initiatives. Waste tires are often illegally dumped along with other solid waste. Therefore, waste tire program field personnel and the surveillance support available through the TEA Grant Program can, in many instances, be leveraged to address both waste tire and other illegal dumping objectives.

CalRecycle's Tire Enforcement Branch is aligned with CalEPA's enforcement initiatives, which include a progressive enforcement program. When a violation is first identified (the first offense), a standard Notice of Violation is issued. If the violation is not corrected or is a repeat of past violations, the following enforcement actions are taken until the violation has been resolved:

- Cleanup and abatement orders;
- Administrative complaints; and,
- Referrals to local district attorney's offices and the California Attorney General's office.

Civil and criminal actions are reserved for egregious violations and repeat offenders.

Since many of the initial legacy piles have been brought into compliance, CalRecycle has redirected resources to focus more on maintenance and prevention of illegal tire piles through permitting, inspection, and the waste tire hauler registration and manifest programs. Additionally, ongoing ground and aerial surveillance assist enforcement efforts by identifying remote illegal tire sites and illegal activities of tire businesses. These programs, especially focusing on inspection and surveillance, generate enforcement cases on an ongoing basis.

Objectives

The enforcement program has the following objectives:

1. Support existing and new waste tire enforcement grantees by providing stable funding, training, and ongoing technical assistance.
2. Inspect tire businesses on a routine basis to ensure compliance with all state tire permitting, storage, and movement laws, regulations, and state minimum standards.
3. Provide ongoing surveillance for illegal tire sites. Identify and investigate all suspected illegal tire sites through ground and aerial surveillance and respond to complaints.
4. Bring all known sites that are operating illegally (without the proper permits and/or operating outside the terms and conditions of their permits, or state minimum standards) into compliance through a progressive enforcement program.
5. Manage a tire database that will collect, store, and report the necessary information for an effective program.

Performance Measures

The performance measures listed below have been streamlined and updated to align with the activities listed in this Biennial Revision of the Five-Year Plan.

1. Inspections:

- a. Inspect all active major and minor permitted facilities in California at least once every 12 months.
- b. Inspect all active registered and exempt haulers located in California at least once every 24 months.
- c. Inspect all active generators and end-use facilities located in California at least once every 36 months.

2. Noncompliant Tire Businesses:

- a. Take timely progressive enforcement actions on illegal, unpermitted waste tire facilities, and report the numbers of illegal sites remediated through the enforcement program.

3. Grant Program:

- a. Provide training to TEA grantee inspectors.
- b. Report on TEA grantee performance starting July 1, 2018.

Activity Description and Budget

The waste tire enforcement program will implement a two-pronged approach to statewide enforcement using local enforcement entities where available and state resources in other areas. This program will provide ongoing assistance to local jurisdictions and oversee the entire enforcement effort. Table 2 provides a list of activities and associated budgets for the enforcement and regulations relating to the storage of waste and used tires element.

Table 2: Budget for Enforcement and Regulations Relating to the Storage of Waste and Used Tires

Program Area	FY 2017–18	FY 2018–19	FY 2019–20	FY 2020–21	FY 2021–22
Waste Tire Enforcement Support Activities	\$120,000	\$320,000	\$120,000	\$320,000	\$120,000
California Highway Patrol Agreement to Support Enforcement Activities	\$200,000	\$0*	\$200,000	\$0*	\$200,000
Local Government Waste Tire Enforcement Grant Program	\$6,500,000	\$6,500,000	\$6,500,000	\$6,500,000	\$6,500,000
Database System Maintenance and Enhancement	\$165,000	\$165,000	\$165,000	\$165,000	\$165,000
Tire Enforcement Inspector Technical Training	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000
Totals	\$7,085,000	\$7,085,000	\$7,085,000	\$7,085,000	\$7,085,000

* Budgets for these fiscal years are zero due to the contract running for a two-year cycle.

1. Waste Tire Enforcement Support Activities: Waste Tire Enforcement Support Activities: This line item supports the overall mission of enforcing the laws regarding the hauling, storage, and disposal of waste and used tires in California and along the California/Mexico border region and illegal activities related to export of tires through California ports. Funds will be allocated to the following projects:

- **Surveillance Equipment and Assistance:** CalRecycle entered into an agreement with the Air Resources Board (ARB) in May 2014 which continues ARB's previous support of field investigative efforts by CalRecycle tire enforcement staff and local waste tire enforcement grantees. ARB has extensive experience in assisting other agencies in the purchase, maintenance, monitoring, and use of both covert and overt surveillance equipment. ARB's expertise has aided and should continue to aid CalRecycle and local waste tire enforcement grantees' efforts to detect, deter and prosecute those who illegally haul and/or dispose of tires, or illegal activities related to tire exports through California ports. Additionally, as needed, ARB will help CalRecycle identify, evaluate, and procure more sophisticated surveillance equipment for covert activities to allow for real-time remote monitoring and sensing.
- **California Environmental Quality Act (CEQA) Compliance Support:** CalRecycle will procure contractor support for conducting required CEQA analyses for new permitted facilities or for permitted facilities that want to/need to expand their facility's authorized operating limits. Often facilities with a minor waste tire facility permit find that the practical operating demands of remaining viable within their industry bring them into conflict with the statutory 4,999 waste tire storage limit of their minor permit. For these facilities, one of the biggest hurdles in acquiring the needed major waste tire facility permit, which would enable them to operate successfully while staying in compliance, is meeting the CEQA requirements for the larger permit. The contractor will provide CEQA expertise and analyses for CalRecycle to complete the needed CEQA compliance in considering applications for major permits.
- **Permitting Assistance Contract:** Permitted waste tire storage and processing capacity in the state is limited and needs to be expanded. Providing contractor support with expertise in local land use and state permitting requirements would help local waste tire facilities more quickly comply with permitting requirements and achieve a permitted status that fits their business operations while ensuring compliance with waste tire laws. This would provide waste tire enforcement resources to operators who are complying but who need expertise in permitting to expand their business.
- **Waste Tire Enforcement Inspectors and Managers Coordination, Training and Development, and Outreach:**
 - CalRecycle will continue to provide training and conduct regular meetings, workshops, and webinars to train and maintain a high level of competence among all local government waste

tire inspectors working in the TEA grant program in support of ongoing compliance verification, violation detection, and enforcement case development. CalRecycle will also provide ongoing training for waste tire haulers, CHP officers, local sheriff's deputies, police officers and other state law enforcement personnel to make them aware of California's waste tire laws and regulations and the role they can play in helping detect violations and provide additional enforcement support.

- CalRecycle will procure contractor support to develop and implement distance learning capabilities and curricula via the Internet in support of providing initial and ongoing training for local tire enforcement grantee inspectors. This will enable more inspectors to receive more frequent training than is currently capable and will leverage limited travel budgets that currently prevent many inspectors from being able to attend in-person annual and periodic roundtable training sessions. This effort will also focus on providing ongoing education and training to waste tire haulers as part of their annual registration renewal activities. The overall effort is focused on using the ever-expanding reach of the Internet to communicate with our partners and stakeholders in the regulated community and provide needed education and training. The latter is part of CalRecycle efforts to achieve greater waste tire enforcement compliance through expanded education and outreach. This will enable CalRecycle to focus limited enforcement resources on more serious and repeat offenders.

Activity Funding

FYs 2017–18, 2019–20, and 2021–22\$120,000 per fiscal year
 FYs 2018–19 and 2020–21\$320,000 per fiscal year

2. California Highway Patrol (CHP) Agreement to Support Enforcement Activities:

CHP will continue its support to CalRecycle's field efforts in the areas of ground and aerial surveillance, covert and overt investigations, inspector security, training for state and local law enforcement officers, and roadside checkpoints to assist CalRecycle as well as local waste tire enforcement personnel in their efforts to detect and deter waste tire facility and hauling violations. If CHP is unable to continue this work after the current contract expires due to budget or priority issues, CalRecycle will pursue a similar agreement with other law enforcement agencies. This effort also includes surveillance and enforcement support focused on illegal activities related to tire exports through California ports and in the California/Mexico border region.

Activity Funding

FYs 2017–18, 2019–20, and 2021–2022\$200,000 per fiscal year

3. Local Government Waste Tire Enforcement Grant Program: This long-running grant program enhances California's waste tire enforcement infrastructure by providing noncompetitive grants to cities, counties, or cities and counties to perform local waste tire inspection and enforcement activities. This program augments CalRecycle's enforcement efforts in overseeing the proper

management and flow of waste tires throughout the state. Eligible entities are reimbursed for costs to identify waste tire sites, conduct waste tire facility inspections, investigate illegal tire disposal activities and conduct small tire pile cleanup, review waste tire hauler documents, and issue Notices of Violation. They ensure that tire dealers, waste tire processors, auto dismantlers, retreaders, tire haulers, and other waste tire entities comply with all applicable laws, storage standards, and manifest requirements. This program will allow waste tire grantees to be reimbursed for time that grantees spend coordinating with a Local Conservation Corps to clean up small waste tire piles and illegally dumped waste tires.

The program strives to provide consistent statewide inspection and enforcement coverage in a cost-effective and efficient manner. As a result of the program, local governments have an expanded role in the enforcement of these waste tire entities, and are able to apply their unique local knowledge thereby ensuring the proper management of California’s annual production of over 44 million waste tires and improving the overall protection of public health, safety, and the environment.

Activity Funding

FYs 2017–18-2021–22.....\$6,500,000 per fiscal year

- 4. Database System Maintenance and Enhancement:** The Waste Tire Management System (WTMS) tracks tire enforcement and manifest program activities. The system was developed per the requirements defined in the approved feasibility study report. The system tracks waste tire generators, registered waste tire haulers, permitted and unpermitted end-use facilities, manifest forms, inspection records, and enforcement actions.

The system was initially released in July 2003 and has continued to meet requirements through continued maintenance and enhancement at an annual cost of \$165,000 per fiscal year. Areas of ongoing maintenance and enhancement include:

- Standard reports to track facility inspections, waste tire storage permits, grantee referrals, and Notices of Violation to ensure performance measures are achieved.
- Ongoing enhancements to compliance reports that assist grantees with inspection prioritization and planning.
- Ongoing maintenance that includes revising inspection forms and making now mandatory electronic inspection reporting efficient and cross-platform supported.
- Additionally, periodic upgrades to the system are anticipated as the program continues to grow and change to meet the needs of our internal and external stakeholders as well as CalEPA reporting requirements.

Activity Funding

FYs 2017–18-2021–22.....\$165,000 per fiscal year

- 5. Tire Enforcement Inspector Technical Training:** These funds are used to supplement the tire portion of CalRecycle’s annual technical training series for local waste tire enforcement agencies and CalRecycle tire enforcement staff. Training provides inspectors and managers with up-to-date information on CalRecycle’s waste tire management policies, programs and grants, as well as a venue to network and discuss other items of interest regarding the management of waste tires and emerging challenges or threats. Other outreach activities may also be held during the year. This annual training event offers concurrent technical sessions, and field tours provide an opportunity to network with other local enforcement agencies, tire enforcement agencies, CalRecycle staff, and industry.

Activity Funding

FYs 2017–18-2021–22.....\$100,000 per fiscal year

Waste and Used Tire Hauler Program and Manifest System

Hauler and Manifest Program Background and Status

The original waste tire manifest system was created in 1995 to provide documentation of waste tire transactions between the tire generator, tire hauler, and the end-use facility. A copy of the manifest form was left with each of the respective parties as proof of the tire transaction. The form was retained at the place of business for three years so it could be reviewed by staff or authorized representatives upon request. Unfortunately, since the information was not provided directly to CalRecycle, there was no simple way to track tire movement.

To better track the flow of waste and used tires in California, the Legislature passed SB 876 (Escutia, Chapter 838, Statutes of 2000), which required the development and implementation of a uniform statewide waste and used tire manifest program. The California Uniform Waste and Used Tire Manifest System developed pursuant to this law went into operation in July 2003. This legislation stated that every person who transported 10 or more waste or used tires would have to hold a valid tire hauler registration and use state-issued decals and manifests. Prior to obtaining registration, a prospective hauler would also be required to post a \$10,000 bond. In addition, tire haulers would have to register annually with CalRecycle, possess manifests during the transport of waste or used tires, and transport only to legally authorized end-use facilities. Tire generators, haulers, and end use facilities all had to submit the completed manifest forms to CalRecycle. The law also required that a person who received waste or used tires from an unregistered hauler had to report that hauler to CalRecycle by providing the name, address, phone and license plate numbers of the unlicensed hauler, and the amount of tires being transported. The Tire Hauler and Manifest Program consisted of two separate components: registration and manifesting. Enforcement efforts against tire haulers resulted in significant fines summarized in the Enforcement Program element.

Currently, CalRecycle registers more than 1,400 California waste and used tire haulers and more than 7,500 vehicles. Registrations expire annually at the end of each calendar year. CalRecycle sends renewal packages to registered haulers well before the end of the year to ensure haulers can renew their registrations in a timely manner. Tire haulers who do not renew their registrations by the end of the calendar year are canceled.

Current law allows exemptions from waste tire hauler registration requirements under certain conditions, which include:

- Persons hauling fewer than 10 waste or used tires;
- Persons hauling using a government vehicle or persons employed by either local, state, or federal government and who are not hauling tires for hire;
- Persons hauling waste or used tires through the state without loading or unloading tires;
- Persons hauling waste or used tires for agricultural purposes, as defined in statute;

- Common carriers hauling waste or used tires on a back-haul;
- Haulers inadvertently carrying waste or used tires that are commingled with solid waste but are not economically feasible or safe to remove; and
- Persons who receive an exemption letter from the local enforcement agency (LEA) for a single haul to the landfills or permitted destination site.

Although the manifest system implemented in 2003 provided useful information on waste tire flow (including import and export data) and proved useful as an enforcement tool to investigate potential violations, the promise of a system to track waste tires from “cradle to grave” was not fully realized. The main problem encountered with this new manifest system was the voluminous amount of paperwork that was required, which prompted numerous complaints from the regulated community and strained CalRecycle’s ability to compile and integrate the information.

Therefore, in 2004-2005, CalRecycle conducted workshops to gather input from stakeholders on how best to improve the system. Working closely with stakeholders, CalRecycle streamlined and simplified the original process for complying with the manifest program requirements. Staff developed a revised Comprehensive Trip Log form, which was adopted in February 2005. Utilizing this form, the tire hauler submits manifest information on behalf of all parties in the tire transaction, significantly reducing paperwork. During the first year of implementation, the total volume of paperwork was reduced by 71 percent; and in 2014, this percentage remains relatively the same. The revised form contains the same information as the previous manifest and trip log forms; however, it condenses this information onto a single form for reporting purposes.

The tire haulers have other non-paper alternatives for reporting manifest information. Haulers are now able to transmit tire manifest information electronically by using CalRecycle’s electronic data transfer (EDT) process. The expansion of EDT in 2006 resulted in additional program efficiency and cost-effectiveness as 46 percent of all manifest records were submitted electronically; in 2014, that percentage remained the same. Although there was no increase in electronic data submissions, the number of haulers utilizing this mode increased to 99; four are submitting data in batches and 94 are using the web-based mode.

As an additional program improvement, in 2007 CalRecycle approved implementation of a portable hand-held device pilot program to evaluate the feasibility of transmitting manifesting information via electronic data transmission from field personnel. Although this pilot program was not pursued beyond a feasibility study due to other program priorities, CalRecycle staff worked with a large tire hauler who has shown an interest in this project. While CalRecycle is not funding the project at this time, this concept was well received as a more consistent and accurate reporting process. Currently, this tire hauler has fully implemented this hand-held device and other tire haulers continue to show interest in such devices.

Improvements in the efficiency and reliability of the manifest program have greatly contributed to and supported CalRecycle’s enhanced enforcement. In 2008, the number of prosecutions of hauler manifest

and registration violations, and the demands on CalRecycle's legal and program staff, required a more expeditious method for processing these violations. To this end, a six-month Streamlined Enforcement Pilot Program was approved by CalRecycle in April 2008 and fully implemented in July 2008. The streamlined enforcement process, modeled on similar protocols utilized by other state agencies, consists of a penalty letter sent to the violator informing them of the violations and giving two payment options: 1) pay a reduced penalty amount based upon pre-approved criteria and do not challenge CalRecycle allegations, or 2) contest the findings and have the case presented before an Administrative Law judge, at which time significantly higher penalties would be requested.

If the violator decides to accept the reduced penalties, a Stipulated Decision and Order informing the violator of the allegations, the penalty amount, and their waiver of rights to an administrative hearing is signed by the responsible party and sent back with payment, and the decision is final.

The streamlined penalty letter process has been an overwhelming success in reducing enforcement-related costs and improving compliance and was approved as a permanent enforcement tool in 2009. To date, 476 penalty letters have been issued, of which 447 (94 percent) have been signed and returned with the Stipulated Decision and Order and payments. CalRecycle staff expanded this process for facility violators in 2014.

Direction Provided by SB 876

SB 876 mandated changes to the hauler and manifest program. In particular, it provides for a reform to the manifest system and the development of a new manifest form. SB 876 mandated the following:

1. "Close the loop" on accountability by requiring that copies of each manifest are returned to CalRecycle for monitoring.
2. Increase from four to nine the maximum number of waste and used tires that can be transported without having to obtain a waste tire hauler permit.
3. Provide for "one-time hauls" to support amnesty days and individual cleanup of small tire piles.
4. Enhance the manifest system and make the manifest available in electronic format, which would make it possible to submit information to CalRecycle electronically.
5. Change the placement of the decal from the driver's side door to the lower right-hand corner of the windshield.
6. Increase the penalties levied for violations of the PRC pertaining to waste and used tire hauling from \$5,000 to \$25,000.

Public Resources Code section 42961.5 requires all parties—waste tire generators, haulers, and end-use facilities—to participate in the "California Uniform Waste and Used Tire Manifest System." The tire hauler completes a Comprehensive Trip Log receipt for every pickup or delivery of waste or used tires. These receipts are reviewed and signed off by the facility operator, and a copy of the receipt is left at that place of business to retain for a period of three years. The hauler sends a copy of the completed form to CalRecycle within 90 days and retains a copy for three years.

Objectives

The Hauler and Manifest Program has the following objectives:

1. To complement and support CalRecycle's waste tire enforcement program by providing comprehensive and auditable data on waste tire transactions between generators, haulers, and end-use facilities, thereby reinforcing compliance with SB 876 and the implementing regulations, and reducing the incidence of illegal waste tire disposal.
2. To provide information on tire movements within the state and across borders to help support tire diversion and market development activities.

Performance Measures

The performance measures listed below have been streamlined and updated to align with the activities listed in this Biennial Revision of the Five-Year Plan. The Hauler and Manifest Program will use the following measures to evaluate success in achieving its objectives:

1. Reduce the number of registered waste tire haulers that do not submit manifests to no more than 5 percent of the active tire haulers by December 2018.
2. Reduce the percentage of active tire haulers whose manifest form error rate is greater than 10 percent by December 2018.
3. Track the percentage of waste tire enforcement program cases for which the manifest system information has been used to assist CalRecycle staff and local enforcement agencies and report annually.
 - a. Track the number of "204 Form" entries for which the end-use facility operators are required to report unregistered waste tire haulers transporting tires to their facilities as well as complaint forms received.
4. Track the number of penalties levied for violations of the PRC pertaining to waste and used tire hauling and report annually.
5. Determine the quantity of waste or used tires being picked up or delivered each year in California by December 2018.

Activity Description and Budget

The hauler and manifest program is a general budget line item as shown in Table 3. The costs associated with this budget include printing, mailing, and return postage for the Comprehensive Trip Log (CTL) waste tire manifest forms that are provided to California's 1,400-plus registered waste tire haulers (free of charge); training and educational materials; contractor support to scan and conduct data entry of the returned CTL forms; and augmenting CalRecycle's Information Technology Services Branch annual

budget for manifest and hauler registration-related upkeep and maintenance of the WTMS database. Additionally, budgeted funds cover the cost of printing registered waste tire hauler decals and certificates and Tire Program Identification Number certificates issued to California’s 30,000+ waste tire entities.

Table 3: Budget for the Waste and Used Tire Hauler Program and Manifest System

Program Area	FY 2017–18	FY 2018–19	FY 2019–20	FY 2020–21	FY 2021–22
Hauler Program and Manifest System	\$450,000	\$450,000	\$450,000	\$450,000	\$450,000
Totals	\$450,000	\$450,000	\$450,000	\$450,000	\$450,000

Hauler Program and Manifest System: With CalRecycle approval of the CTL form, the overall costs for the manifest program have been reduced as less printing, postage, and processing time is necessary. The numbers presented above in Table 3 adequately reflect this revision. Funds also will be allocated to the following project:

Waste Tire Hauler Portal: CalRecycle will continue development and expansion of its online waste tire hauler portal. This resource is designed to enable California’s 1,400-plus waste tire haulers to complete most activities associated with applying for and annually renewing their waste tire hauler registrations, as well as managing their business’ hauler information within the WTMS database.

Waste Tire Hauler Training Workshops: CalRecycle will continue conducting cost-free, bilingual training workshops throughout California, with a special emphasis on the California/Mexico Border region, to augment our outreach and educational efforts conducted as part of the annual hauler registration renewal process, to inform and educate waste tire haulers on their roles and responsibilities under California’s waste tire compliance system.

Activity Funding

FYs 2017–18-2021–22.....\$450,000 per fiscal year

Cleanup, Abatement, or Other Remedial Actions Related to Tire Stockpiles Throughout the State

Cleanup Program Background and Status

The Cleanup Program consists of short-term remediation projects, four grant programs and the emergency reserve account.

Since 1995, CalRecycle has removed more than 660,000 tons of illegal waste tires and contaminated debris from 79 sites at a total cost of more than \$43 million. While the number of sites remediated each year has generally decreased since 1999, the cleanup costs have varied significantly depending on the number of large or complex projects undertaken in any year. In years 2007, 2010, 2013, and 2016 no waste tire sites were cleaned up; therefore, no funds were expended.

Table 4: Tire Remediation Data for Short- and Long-Term Remediations

Year	Number of Sites	Tons of Tires Remediated	Remediation Cost
1995	6	21,544	\$870,832
1996	6	4,114	\$389,487
1997	9	28,329	\$1,367,760
1998	8	43,565	\$2,515,592
1999	15	11,867	\$1,442,688
2000	6	46,029 ¹	\$3,340,505
2001	1	36,209 ¹	\$2,162,000
2002	2	214,417 ¹	\$11,624,345
2003	1	27,707 ¹	\$1,849,943
2004	1	148,833 ¹	\$9,836,885
2005	10	72,941 ¹	\$4,300,000
2006	2	1,285	\$506,405
2007	0	0	\$0
2008	2	881	\$235,011
2009	5	1,628 ^{1, 2}	\$1,536,161
2010	0	0	\$0
2011	1	443	\$177,700
2012	1	80 ²	\$599,494
2013	0	0	\$0
2014	2	268	\$250,000
2015	1	5	\$16,000
2016	0	0	\$0
Totals	79	660,070	\$43,000,808

¹ These totals include tons of contaminated debris removed.² Includes a joint project with the Short-Term Remediation Program and Solid Waste Cleanup Program in the Tijuana River Valley. See discussion in Cleanup Program Section of Appendix B.

The Local Government Waste Tire Cleanup Grant Program provides funding to California jurisdictions including cities, counties, special districts, other political subdivisions and jurisdictions joined together by formal agreements, as well as Qualifying California Indian tribes which are eligible for the cleanup of tires that have been illegally disposed along rights-of-way and on private property. For Fiscal Year 2016–17, eligible applicants could apply for up to \$100,000 for individual grants and up to \$250,000 for regional grants. Since 1997, CalRecycle has provided more than \$13 million to fund 246 grants. Table 5 below summarizes the grant program.

Table 5: Local Government Waste Tire Cleanup Grant Program

Fiscal Year	Number of Grants	Amount Awarded
1997–98	8	\$171,286
1998–99	4	\$51,768
1999–00	6	\$213,126
2000–01	0	*
2001–02	8	\$449,889
2002–03	11	\$646,260
2003–04	14	\$712,286
2004–05	16	\$735,511
2005–06	20	\$778,044
2006–07	20	\$845,867
2007–08	15	\$790,923
2008–09	15	\$834,943
2009–10	19	\$1,027,855
2010–11	21	\$1,081,559
2011–12	0	**
2012–13	23	\$1,723,223
2013–14	0	***
2014–15	23	\$1,715,882
2015–16	0	***
2016–17	23	\$1,589,369
Totals	246	\$13,367,791

* No funds available—sunset of tire fee. **Grant program was suspended to transition to a two-year term. ***Funding was allocated (on an alternating-year basis) to the Local Government Waste Tire Amnesty Grant Program.

The Local Government Waste Tire Amnesty Grant Program provides funding to California jurisdictions including cities, counties, special districts, and jurisdictions joined together by formal agreements, as well as Qualifying California Indian tribes to hold collection events in convenient locations for the public to bring in their waste tires for free. Since 1992, CalRecycle has provided more than \$13 million in funding, awarding 468 grants. For Fiscal Year 2017–18, applicants are eligible to apply for a maximum of \$40,000 for single jurisdiction applicants and \$100,000 for regional applicants. Table 6 summarizes the grant program.

Table 6: Local Government Waste Tire Amnesty Grant Program

Fiscal Year	Number of Grants	Amount Awarded
1992–93	4	\$59,100
1993–94	8	\$177,720
1994–95	13	\$387,989
1995–96	1	\$12,744
1998–99	16	\$176,543
1999–00	26	\$374,043
2000–01	0	*
2001–02	22	\$330,817
2002–03	11	\$321,247
2000–04	29	\$924,674**
2004–05	17	\$704,793
2005–06	31	\$808,879
2006–07	33	\$807,416
2007–08	43	\$1,198,594
2008–09	40	\$1,240,311
2009–10	43	\$1,320,772
2010–11	43	\$1,368,441
2011–12	0	***
2012–13	0	****
2013–14	52	\$2,034,136
2014–15	0	****
2015–16	36	\$1,720,495
Totals	468	\$13,968,714

* No funds available—sunset of tire fee. ** The number of applicants increased because no matching funds were required. ***Grant program was suspended to transition to a two-year term. ****Funding was allocated (on an alternating-year basis) to the Local Government Waste Tire Cleanup Grant Program.

The FY 2014–15 Governor’s Budget allocated \$2.5 million to the Local Conservation Corps (LCCs) Grant Program from the tire fund, and \$5 million in subsequent fiscal years. CalRecycle encourages LCCs to assist jurisdictions with Cleanup/Amnesty grant events because leveraging these resources could potentially enable more jurisdictions to receive grants for this purpose.

The ways in which an applicant might coordinate with LCCs include, but are not limited to, assisting with planning or running an amnesty event, creating public education/advertising materials, and/or covering the cost of tire hauling. Costs covered by an LCC should be shown on the budget as a separate column as “in kind” and are not to be included in the cost per tire calculation.

Direction Provided by SB 876

Public Resources Code section 42889(b) provides that:

“These (Tire Recycling Management Fund) moneys shall be expended for ... the following purposes:

(5) To pay the costs of cleanup, abatement, removal, or other remedial action related to tire stockpiles throughout the state, including all approved costs incurred by other public agencies involved in these activities by contract with the board. Not less than six million five hundred thousand dollars (\$6,500,000) shall be expended by the board during each of the following fiscal years for this purpose: 2001-02 to 2006-07, inclusive.

(9) To pay the costs to create and maintain an emergency reserve, which shall not exceed one million dollars (\$1,000,000).

(10) To pay the costs of cleanup, abatement, or other remedial action related to the disposal of waste tires in implementing and operating the Farm and Ranch Solid Waste Cleanup and Abatement Grant Program established pursuant to Chapter 2.5 (commencing with Section 48100) of Part 7.”

Objectives

The Cleanup Program has the following objectives:

1. Eliminate illegal waste tire stockpiles throughout California, either directly or through grant assistance, where the responsible parties have failed to take appropriate action.
2. Decrease illegal waste tire dumping by assisting local governments through grant funds in developing public education materials on proper maintenance and disposal of automobile tires and promoting waste tire amnesty events for the general public.
3. Assist victims of illegal dumping on farm and ranch properties in cleaning up waste tires.
4. Direct tires from cleanup to productive end use rather than landfill disposal to the greatest extent possible within reasonable cost parameters.

Performance Measures

The performance measures listed below have been streamlined and updated to align with the activities listed in this Biennial Revision of the Five-Year Plan:

1. Complete the short-term waste tire remediation projects referred by the Enforcement Program in a timely manner and report status of projects to CalRecycle on an annual basis.
2. Increase the number of tires collected/remediated through Farm and Ranch Cleanup, Tire Cleanup, Tire Amnesty, and Local Conservation Corps grants by 10 percent annually.

Activity Description and Budget

The cleanup program will continue to remediate sites with CalRecycle-managed contractors and grants to entities for cleanup of illegal piles. The Local Conservation Corps will continue to assist local governments with cleanup and collection activities, which may eventually phase out the necessity for the Local Government Waste Tire Cleanup and Amnesty grant programs (this would necessitate CalRecycle working with the LCCs to support the availability of these services in areas of the State not traditionally serviced by LCCs). In addition, CalRecycle will continue to provide funding to the Farm and Ranch Solid Waste Cleanup and Abatement Grant Program to further mitigate future accumulations of waste tires. However, this program and CalRecycle's Solid Waste Cleanup grant program will be evaluated over the next few years to determine if it is more efficient to consolidate them into one cleanup grant program. Also, CalRecycle will establish an emergency reserve account, which cannot exceed \$1 million, as directed by SB 876. Table 7 provides a list of activities and associated budgets for the element titled "Cleanup, Abatement, or Other Remedial Actions Related to Tire Stockpiles throughout the State."

Table 7: Budget for Cleanup, Abatement, and Remedial Action

Program Area	FY 2017–18	FY 2018–19	FY 2019–20	FY 2020–21	FY 2021–22
Short-Term Remediation Projects	\$300,000	\$300,000	\$300,000	\$300,000	\$300,000
Local Conservation Corps Grant Program	\$5,000,000	\$5,000,000	\$5,000,000	\$5,000,000	\$5,000,000
Local Government Waste Tire Cleanup Grant Program	\$0	\$1,600,000	\$0	\$1,500,000	\$0
Local Government Waste Tire Amnesty Grant Program	\$1,619,916	\$0	\$1,450,000	\$0	\$1,450,000
Emergency Reserve Account	\$300,000	\$300,000	\$300,000	\$300,000	\$300,000
Farm and Ranch Solid Waste Cleanup and Abatement Grant Program*	\$400,000	\$400,000	\$400,000	\$400,000	\$400,000
Totals	\$7,619,916	\$7,600,000	\$7,450,000	\$7,500,000	\$7,450,000

* Funds transferred to Farm and Ranch Solid Waste Cleanup and Abatement Grant Program.

1. **Short-Term Remediation Projects:** Public Resources Code (PRC) Section 42846 allows CalRecycle to perform any cleanup, abatement, or remedial work required to prevent substantial pollution, nuisance, or injury to public health and safety at waste tire sites where the responsible parties have failed to take appropriate action. CalRecycle funds short-term remediation of illegal waste tire sites with CalRecycle-managed contracts, which may be used to stabilize piles until removal; remove all waste tires; and/or remediate the site after the tires have been removed.

Activity Funding

FYs 2017–18-2021–22.....\$300,000 per fiscal year

2. **Local Conservation Corps Grant Program:** The purpose of the grant [program](#) is to implement beverage container recycling and litter abatement programs, recycling activities related to the collection and recovery of used oil and electronic waste, and the cleanup and abatement of waste tires. Eligible applicants are Local Conservation Corps that are designated by a county to perform litter abatement, recycling, and related activities, and are certified by the California Conservation Corps as having operated for a minimum of two years and as meeting all other criteria of PRC section 14507.5 This program expends funding from the California Beverage Container Recycling Fund, Electronic Waste Recovery and Recycling Account, California Tire Recycling Management Fund, and California Used Oil Recycling Fund. Eligible activities may include cleanup events, education and outreach, event labor and staff resources in partnership with local jurisdictions, collection and hauling services (if permitted) and other projects allowed under PRC sections 17001(b)(3) and 42872. The LCCs will assist local governments with waste tire cleanup and collection activities; this may eventually phase out the necessity for the Local Government Waste Tire Cleanup and Amnesty grant programs, however, until further analysis is completed, CalRecycle is continuing those grant programs. CalRecycle will work with the LCCs to support the availability of these services in areas of the State not traditionally serviced by the LCCs.

Activity Funding

FYs 2017–18-2021–22.....\$5,000,000 per fiscal year

3. **Local Government Waste Tire Cleanup Grant Program:** This grant [program](#) is designed to pay for the cost of cleanup of illegally dumped waste tires. Funds are available for the collection, removal, transportation, recycling, and disposal of California waste tires from tire piles and areas where illegal dumping has occurred. Funds are limited to the removal of waste tires along public rights-of-way and on private property with either: (a) less than 500 tires on site, or (b) 500 to 4,999 tires if the property owner signs an affidavit stating that they did not bring the tires on site or allow others to bring the tires on site. Local governments including cities, counties, special districts, other political subdivisions and jurisdictions joined together by formal agreements, as well as qualifying Indian tribes, are eligible for funding. Cities or counties may submit a regional application with authorization from other cities and/or counties participating in the regional application. Priority will be given to applicants that demonstrate coordination with a Local Conservation Corps. Eligible costs for this coordination will be described the in Procedures and Requirements section of the Grant Agreement.

Note: This program could be phased out after 2020–21. If so, cleanup activities may be conducted by the LCCs. CalRecycle will work with the LCCs to support the availability of these services in areas of the State not traditionally serviced by the LCCs.

Activity Funding

FY 2018–19.....\$1,600,000
 FY 2020–21.....\$1,500,000

4. **Local Government Waste Tire Amnesty Grant Program:** This grant [program](#) is designed to help divert waste tires from landfill disposal and prevent illegal tire dumping. Funds pay for waste tire collection events that are held in convenient locations for the public to bring in their used tires at no charge. An amnesty event can also consist of a coupon program that allows citizens to bring in their tires on specified days. Amnesty events are not intended for the disposal of waste tires from waste tire generating businesses (PRC §42954(7)). Local governments including cities, counties, special districts, other political subdivisions and jurisdictions joined together by formal agreements, as well as qualifying Indian tribes, are eligible for funding. Cities or counties may submit a regional application with authorization from other cities and/or counties participating in the regional application. Priority will be given to applicants that demonstrate coordination with a Local Conservation Corps. Eligible costs for this coordination will be described in the Procedures and Requirements section of the Grant Agreement. *Note: This program could be phased out after FY 2019–20. If so, amnesty activities may be conducted by the LCCs. CalRecycle will work with the LCCs to support the availability of these services in areas of the State not traditionally serviced by the LCCs.*

Activity Funding

FY 2017–18.....\$1,619,916
 FYs 2019–20 and 2021–22.....\$1,450,000 per fiscal year

5. **Emergency Reserve Account:** SB 876 required CalRecycle to create and maintain an emergency reserve account which shall not exceed \$1 million. Funding for FYs 2017–18–2021–22 is proposed at \$300,000. These funds will be used to respond to emergencies involving waste tires (e.g., tire fires). This emergency reserve account is subject to change depending on the need to fund cleanups for any emergencies that arise. While CalRecycle is required to maintain funds in this account with expenditure authority for emergency purposes, more than \$1,000,000 may be expended on a yearly basis. If allocated funds are not expended, funds may be carried forward to the fund balance in the following fiscal year.

Activity Funding

FYs 2017–18–2021–22\$300,000 per fiscal year

6. **Farm and Ranch Solid Waste Cleanup and Abatement Grant Program:** The purpose of this grant [program](#) is to provide funding for the cleanup of illegal solid waste sites on farm or ranch property. A site may be eligible for funding if the parcel(s) is (are) zoned for agricultural use, unauthorized solid waste disposal has occurred, and the site(s) is (are) in need of cleanup in order to abate a nuisance or

public health and safety threat and/or a threat to the environment. Tire piles can attract more dumping, so cleaning up these sites will help deter future illegal dumping of tires. SB 876 requires that transferred tire funds be allocated to pay the costs of cleanup, abatement, or other remedial action related to the illegal disposal of whole waste tires on farm or ranch properties. Other non-tire cleanup costs are paid for using other program funding sources.

Activity Funding

FYs 2017–18-2021–22\$400,000 per fiscal year

Research Directed at Promoting and Developing Alternatives to the Landfill Disposal of Tires; and Market Development and New Technology Activities for Waste and Used Tires

Program Background and Status

As in the previous edition, CalRecycle has combined the Research and Market Development Program into one element because of the close relationship of the activities. In addition, CalRecycle has combined all research and technical support activities for tire-derived aggregate (TDA) into one line, and all research and technical assistance activities for rubberized asphalt concrete (RAC) into another line.

Research and Technical Support

Over the years, CalRecycle has investigated a variety of waste tire diversion alternatives through internally generated research contracts and literature searches of research worldwide. These efforts have helped CalRecycle focus on a mixture of strategies to divert the majority of waste tires from landfills. To date, projects involving TDA, RAC, energy recovery, molded rubber products, and other tire-derived product applications have been explored. So far, TDA and RAC uses have shown the greatest promise for diverting a significant portion of the millions of tires currently being landfilled. However, those two applications cannot by themselves divert all of the remaining landfilled tires. Therefore, CalRecycle continues to refine its knowledge of existing uses and products but will also investigate and research new and innovative applications.

TDA Research

Research efforts have enabled CalRecycle to make significant progress in the development of several long-term sustainable markets for TDA. These research efforts include the use of TDA as a vibration material in light rail applications, a lightweight fill material for embankment and landslide repair, civil engineering applications for use at landfills, a gravel replacement in on-site wastewater treatment (OSWT) systems and as a storm water drainage and treatment media.

One of the most notable research efforts was a study to investigate the use of TDA as a vibration-damping material in its light-rail systems. This research led to several transit agencies using TDA as a vibration mitigation measure in their projects. Most recently, VTA used over 3,000 tons of TDA as vibration mitigation in the expansion of the Bay Area Rapid Transportation Fremont line in 2016. The success of this research project also resulted in the use of TDA in the expansion of the light rail systems in the Metropolitan Transportation Agency in Southern California.

Another recent example of CalRecycle's research efforts include investigations performed by UC San Diego (UCSD) to showcase the advantages of using TDA by better defining its material properties. The research conducted by UCSD allowed CalRecycle to partner with Santa Barbara County to design a highway repair project utilizing TDA in a mechanically stabilized earth application. This project is scheduled to be constructed in the Fall of 2017.

A relatively new CalRecycle research area is a laboratory and field study conducted by CSU, Humboldt to investigate the water quality impacts from TDA. This study demonstrated that TDA has minimal water quality impacts. This allowed TDA to be used as a surface water drainage and treatment media in low impact development projects. This research has enabled several Butte and Sonoma Counties to construct LID projects where TDA was successfully used to manage storm water runoff.

The success of these research efforts has allowed CalRecycle to identify new TDA applications that have created new markets for waste tires. CalRecycle considers TDA to be one of the top-priority markets for waste tires diverted from landfills and will continue its TDA research activities in an effort to create long-term sustainable markets for TDA. Future research efforts could include further analysis of the seismic dampening properties of TDA for use in retaining walls and in mechanically stabilized TDA applications.

RAC Research

CalRecycle continues to make significant progress in promoting rubber paving applications such as RAC overlays and rubber chip seals and, as a result, these uses continue to increase statewide. Research has played a key role in CalRecycle's efforts to increase the use of rubber in paving applications. These research efforts include investigation of the use of rubberized recycled asphalt pavement (RAP) into new RAC pavement, the effectiveness of warm mix additives to rubber pavements, life cycle cost analysis, and the development of rubber overlay and chip seal performance models.

In 2017, CalRecycle is proposing to contract with the University of California Pavement Research Center to investigate performance grading (PG) testing methods for asphalt rubber binders and to also investigate methods for determining the rubber content in terminal blend binders. This research project may ultimately lead to the expansion of the use of both the asphalt rubber and terminal blend binders in future highway projects.

Under previous contracts with CalRecycle, the CSU, Chico Research Foundation developed performance curves for asphalt rubber hot mix for use in current performance models typically used by local government to select strategies for their pavement project. CalRecycle is again partnering with the Foundation to develop performance curves for rubber chip seal projects. Once developed these curves will be utilized in performance models used by local governments, which will ultimately lead to more rubber chip seal use. The Foundation will conduct outreach and training to local governments to promote and educate them on the use of the performance curves developed under their studies. These efforts will help local agencies determine the best projects for using rubber paving applications.

CalRecycle has contracted with Caltrans to conduct research in support of their PG+5 proposal. This proposal would require the use of a minimum of 5 percent crumb rubber in all asphalt binder that Caltrans currently classifies as unmodified, which could significantly increase the diversion of waste tires from CA landfills. Through meetings with stakeholders, Caltrans has identified 16 research proposals needed to implement their PG+5 proposal. The current contract will address the first 4 of the 16 research proposals.

As rubber paving applications continue to evolve and new applications emerge, CalRecycle will continue to study them to gain additional information regarding their benefits and drawbacks. If the ongoing research supports the benefits of these new applications, CalRecycle can then market and promote the use of these applications by including them in future grant offerings, with the aim of enhancing sustainable markets for additional waste tires. Additionally, CalRecycle staff will evaluate current design standards and investigate pavement preservation strategies that use rubber and increase the lifespan and performance benefits (e.g., resistance to reflective cracking, skid resistance, noise reduction) of pavements.

Tire-Derived Product Research

There is no one tire market that will divert all waste tires from California landfills, so CalRecycle needs to continue to conduct research in support of its efforts to promote existing tire-derived products as well as identify new ones. Also, there is a need to evaluate end-of-life options for various TDPs including turf applications and playgrounds to ensure the continued viability of these tire-derived product uses.

Also, with the recent concern regarding the use of tire rubber in artificial turf fields, CalRecycle will continue to assess any new information regarding the human health and environmental risks associated with this application. CalRecycle contracted with the Office of Environmental Health Hazard Assessment (OEHHA) to review previous scientific studies and conduct additional research on the health effects of crumb rubber in synthetic field turf; this report was published in 2010. CalRecycle and OEHHA entered into a new interagency agreement in 2014–15 to conduct a more exhaustive study of the potential health impacts associated with rubber in synthetic turf fields. OEHHA has held two scientific advisory panel meetings to discuss the study design and solicit recommendations from a panel of experts in statistics, toxicology, biomonitoring, and other fields related to the study. OEHHA has performed preliminary chemical extractions of crumb rubber samples and is currently designing field sampling techniques in anticipation of sampling active fields in the summer of 2017. The final report will be available in mid-2019.

CalRecycle may also do research on other non-highway related technologies and products that utilize waste tires to study and determine whether they are viable in the current tire market and if there are health and safety impacts that could adversely impact their use.

California-Mexico Border Region Project

While the majority of tires managed by CalRecycle are waste tires, each year a portion of the used tires generated in California are of sufficient quality to be reused within the state or exported abroad, primarily

to Baja California. Eventually those used tires become waste tires. Based on information from the late 2000s, about two-thirds of waste tires in Baja California are diverted for use as tire-derived fuel for cement kilns or as construction material, but the remaining one-third are illegally disposed, some of which end up in the Tijuana River Valley.

CalRecycle has funded and engaged in a range of border-related activities over the past several years in response to the environmental problems associated with waste tires in the border region (see Appendix B). These include a 2009 tire flow study; California Highway Patrol surveillance work to identify legacy tire piles in the border region; two CalRecycle-managed cleanups of the Goat Canyon debris basins in Border Field State Park; a University of California Berkeley report on the development of an integrated waste management plan for the State of Baja California; training for approximately 50 Mexican tire haulers regarding California's waste tire hauler registration and manifest program; and a new tire flow study that should be available in December 2017.

While we've realized modest progress and increased awareness of waste tires issues along the border region, the environmental problems associated with waste tires and much larger amounts of solid waste and sediment in the border region persist and continue to impact water quality in the Tijuana River estuary.

Long-term resolution requires continued collaboration and coordination with interested parties on both sides of the border, and any such efforts should be transparent to and involve other stakeholders, including local governments and nonprofit organizations. In regard to waste tire cleanup along the border, CalRecycle continues with activities that:

- 1) better define the problem by obtaining updated information on how and where used and waste tires are being transported and stored (including in tire piles) along the border region and on associated economic aspects; and
- 2) work with CalEPA and its existing MOU with the Mexican government, along with other interested partners, to clarify and prioritize which projects (including targeted cleanup activities in the future) would best contribute to long-term environmental protection in the border region.

Potential partners include the U.S. Environmental Protection Agency, and specific CalEPA efforts such as the California-Mexico Border Relations Council's Border Region Solid Waste Working Group (SWWG) and the California-Mexico MOU Working Group; and other governmental and/or non-governmental organizations such as the Tijuana River Valley Recovery Team.

The SWWG, comprised of CalRecycle, San Diego and Colorado River Regional Water Quality Control Boards, the California Department of Parks and Recreation, and CalEPA published its Solid Waste and Waste Tire Strategic Plan in January 2017. This multi-agency framework highlights program, cleanup, and outreach recommendations to address both short-term and long-term environmental issues along the

border relative to waste tires, solid waste, and sedimentation. The plan's overarching theme emphasizes the importance of collaboration and consultation with local and regional governments in California and Mexico on programmatic infrastructure strategies to improve materials management and environmental protection. This set of activities also involve participation with the California Department of Parks and Recreation and the San Diego and Colorado River Regional Boards on current cleanup initiatives.

Market Development

CalRecycle continues to promote the development of long-term, sustainable markets for waste tires. The goal is to achieve and sustain high diversion and recycling rates by helping to create:

- 1) Strong customer demand by both government and private sector purchasers for a wide variety of tire-derived products (TDPs);
- 2) A thriving TDP production infrastructure composed of California manufacturers, contractors and engineering companies able to consistently produce and/or install high-quality tire-derived products satisfying customer demand, with effective marketing and sales capabilities; and
- 3) A resilient, statewide supply infrastructure for collecting waste tires generated throughout California and producing high-quality tire-derived materials such as tire-derived aggregate (TDA) or crumb rubber that satisfies the needs of TDP producers/installers.

CalRecycle's waste tire market development program employs several complementary strategies, including:

- Research to identify and evaluate new tire-derived products and market development opportunities;
- Technical assistance and pilot projects to demonstrate the economic and technical feasibility of new products and applications;
- Funding support through grants, incentives and low-interest loans to help encourage qualified entities to produce and/or purchase tire-derived products;
- Training and outreach activities to help raise awareness about the range of tire-derived products available in California, including their benefits and applications; and
- Ongoing monitoring to track progress and update information on opportunities and barriers.

These strategies are being applied in three product categories: tire-derived aggregate used in civil engineering applications; crumb rubber used in rubberized pavement applications; and a broad category comprising all other tire-derived products.

TDA Market Development

Through CalRecycle's research efforts and the successful performance of TDA projects constructed to date, TDA has proven to be a cost-effective and reliable alternative to conventional construction

materials. These benefits, along with the ability to use large quantities of waste tires, demonstrate that TDA has great market potential. As such, CalRecycle will continue to aggressively promote its use for civil engineering applications by continuing to conduct outreach and education and by providing funds for the TDA Grant Program that started in 2012.

RAC Market Development

Over the years, CalRecycle has provided support to local agencies for RAC and rubberized chip seal projects. Through the Rubberized Pavement Grant Program, scores of new paving projects have either been completed or are being planned in California. When compared to conventional asphalt, RAC saves money, provides greater skid resistance, is quieter, and lasts longer than conventional asphalt. CalRecycle has successfully promoted the product's benefits through workshops, conferences, the RAC technical centers, performance models and other outreach efforts.

Other TDP Market Development

CalRecycle is also promoting expansion of diversified markets involving a wide range of TDPs, with applications in a variety of different market segments. Examples include:

- Building construction products such as flooring, roofing, sealants and pipe couplings;
- Accessibility products such as landing applications, edge reducers and accessible walkways;
- Outdoor surfacing such as tiles, pavers and mats;
- Pour-in-place and other playground surfacing applications; and
- An ever-growing list of other products and applications, such as cleaning supplies, traffic-related products and coatings.

Through the Tire-Derived Product grants program and the Tire Incentive Program, CalRecycle provides funding to help incentivize tire-derived material and TDP suppliers to expand product innovation and marketing, and to help support purchase of diverse TDPs. Through the Tire Outreach and Market Analysis contract, CalRecycle maintains the online California Tire-Derived Product Catalog, conducts outreach to train architects, government agencies and others on the range of TDPs available, researches new TDPs and applications, and prepares an annual Waste Tire Market Report documenting market trends and the current diversion and recycling rate. These reports can be found in CalRecycle's Publications Catalog at <http://www.calrecycle.ca.gov/Publications/Detail.aspx?PublicationID=1503>

Direction Provided by SB 876

SB 876 includes legislative intent language as follows (from 2000 uncoded law, SB 876):

“(g) The purpose of this act is to do all of the following: ... (2) Encourage tire manufacturers to promote the use of retreaded and longer-lasting tires, as well as develop recycled-content rubber tires.”

Public Resources Code section 42889(b) states:

“The remaining moneys collected pursuant to Section 52885 shall be used to fund the waste tire program, and shall be appropriated to the board in the annual Budget Act ... [and] shall be expended ... for the following purposes: ...

5) To make studies and conduct research directed at promoting and developing alternatives to the landfill disposal of waste tires.” ...

(7) To assist in developing markets and new technologies for used tires and waste tires. The board’s expenditure of funds for purposes of this subdivision shall reflect the priorities for waste management practices specified in subdivision (a) of PRC Section 40051.”

Objectives

The research and market development element has the following objectives:

1. Conduct research and establish programs that support and promote new technology, new uses for waste tires, and improvements to products that use California-generated waste tires.
2. Identify research gaps in existing data and determine what areas need further investigation.
3. Increase the use of RAC and TDA applications by providing funds and technical assistance to State agencies and local governments.
4. Increase the purchase of TDPs (Not RAC or TDA) by providing services and funding to State and local agencies to offset costs and promote sustainable purchase practices.
5. Increase the production capability and cost-effectiveness of processing waste tires into value-added products by offering businesses incentives.

Performance Measures

The performance measures listed below have been streamlined and updated to align with the activities listed in this Biennial Revision of the Five-Year Plan.

1. Increase the amount of wasted tires recycled to 75 percent by 2020.
2. Conduct research to address critical barriers to increasing markets for waste tire products and technologies (e.g., RAC PG+5 Issues and Turf field Health and environmental impacts) and incorporate research findings in education, marketing, and outreach materials to continue to promote these applications.
3. Increase the amount of waste tire material used in priority market segments, including RAC, molded and extruded products, civil engineering (transportation), etc.
4. Support the increase in waste tire processing capacity to facilitate the 75 percent recycling goal.
5. Complete and Report on the Recycled Tire Rubber in Turf Fields Research Contract with the Office of Environmental Health Hazard Assessment.

Activity Description and Budget

CalRecycle is proposing to continue funding TDA and RAC research and technical support; funding support of Caltrans specifications development; research on end-of-life issues for tire-derived products; and research on landfill emissions. This will continue CalRecycle's focus on rubberized asphalt concrete, tire-derived aggregate, and other tire-derived products that use the largest number of tires. Since the largest number of tires can be diverted through RAC and TDA applications, significant resources are being devoted to them. Table 9 provides the budget for this element.

Table 9: Budget for Research and Market Development Activities

Program Area	FY 2017–18	FY 2018–19	FY 2019–20	FY 2020–21	FY 2021–22
Tire-Derived Aggregate Civil Engineering Technical Support; Research Efforts; Technology Center and Laboratory Testing Services	\$950,000	\$500,000	\$950,000	\$950,000	\$500,000
Rubberized Asphalt Concrete Technical Support and Research	\$200,000	\$650,000	\$650,000	\$200,000	\$650,000
Caltrans PG+5 Binder Project	\$350,000	\$350,000	\$350,000	\$0	\$0
Research on TDPs and Non-Highway Technologies Using Waste Tires	\$250,000	\$250,000	\$250,000	\$0	\$0
Research on Landfill Emissions	\$250,000	\$0	\$0	\$0	\$0
Research on Potential Effects of Recycled Tire Rubber	\$650,000	\$1,000,000	\$1,000,000	\$0	\$0
Feedstock Conversion Assistance and Material Testing	\$500,000	\$500,000	\$0	\$0	\$0
Tire-Derived Aggregate Grant Program	\$850,000	\$850,000	\$850,000	\$850,000	\$850,000
Rubberized Pavement Grant Program	\$7,750,000	\$7,750,000	\$3,000,000	\$3,000,000	\$3,000,000
Tire-Derived Products Grant Program	\$1,939,226	\$0	\$1,000,000	\$0	\$1,000,000
Tire Incentive Program	\$2,608,858	\$4,468,000	\$3,418,000	\$6,418,000	\$5,468,000
Tire Outreach and Market Analysis	\$300,000	\$300,000	\$300,000	\$300,000	\$300,000
Tire Events	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000
Totals	16,673,084	\$16,693,000	\$11,843,000	\$11,793,000	\$11,843,000

1. Tire-Derived Aggregate (TDA) Civil Engineering Technical Support; Research Efforts; and Technology Center and Laboratory Testing Services:

CalRecycle will continue to provide technical support to address issues associated with the use of TDA in civil engineering projects, research to investigate new TDA applications and laboratory testing services to assure compliance with TDA specifications. As shown in the activity funding below, funding for these efforts will vary between \$500,000 and \$950,000 per fiscal year. This is done to accommodate the award cycles for the contracts needed to support CalRecycle's Technical Support Contracts.

- **Tire-Derived Aggregate Civil Engineering Technical Support:** CalRecycle's technical support efforts will promote the use of TDA through technical assistance, and targeted outreach to

industry, associations, and others who will use TDA. CalRecycle also directs its technical assistance contractor to develop technology transfer materials that showcase the performance and cost benefits of using TDA. The technical assistance contractor will present these materials and serve as a CalRecycle liaison at various key stakeholder group workshops and conferences.

- TDA Research Efforts:** Under this activity, CalRecycle will continue to investigate new civil engineering uses for waste tires, including partnering with state, local, and private-sector engineers to conduct research and to train and educate them on the use of TDA in their projects. For research projects focusing on specific civil engineering uses of waste tires, project-specific contracts may be implemented. These projects could include, but are not limited to, erosion control, earthquake damping, vibration mitigation, retaining and sound walls, storm water runoff/drainage control, and septic tank leach field applications. A recent example that evolved from CalRecycle research efforts is a project that will be done in partnership with Santa Barbara County to demonstrate the feasibility of using TDA in a mechanically stabilized earth application. The proposed project will repair and relocate a section of road on a steep hillside. This project is scheduled to be completed in the fall of 2017.
- Tire-Derived Aggregate Technology Center and Laboratory Testing Services:** CalRecycle will continue its partnership with a contractor who has knowledge and experience with the TDA and RAC material specifications in California. Through the TDA Technology Center, the contractor will provide statewide technical assistance to local governments through direct consultation and presentations at local and regional workshops related to material specifications for both TDA and RAC. To assure compliance with material specifications, the contractor will also provide validation testing services in support of CalRecycle RAC and TDA projects. The contractor will also continue to provide curriculum development support to California universities to educate the next generation of engineers on the benefits of using TDA.

Activity Funding

FYs 2017–18, 2019–20 and 2020–21.....	\$950,000 per fiscal year
FYs 2018–19 and 2021–22.....	\$500,000 per fiscal year

- Rubberized Asphalt Concrete (RAC) Technical Support and Research:** The success of CalRecycle’s RAC programs has been due in part to the technical support that has been provided through CalRecycle’s RAC technical assistance contract and research efforts conducted by its university partners. Therefore, CalRecycle is proposing to continue to provide technical support and research to address issues associated with roadway projects, including rubber hot-mix, rubber chip seal, rubber cape seals, and other emerging paving applications that have been determined by CalRecycle to have benefits derived from the use of scrap tire rubber. As shown in the activity funding below, funding for these efforts will vary between \$200,000 and \$650,000 per fiscal year. This will accommodate the award cycles for the contracts needed to support CalRecycle’s Technical Support Contracts.

- **RAC Technical Support:** The technical assistance contractor will also assist CalRecycle with marketing and promoting the use of RAC. This will be accomplished through the development and distribution of technology transfer materials that showcase the benefits of using RAC and presentation of these materials at key stakeholder workshops and conferences. The contractor provides technical assistance and training to RAC grantees to assure that their projects are successful. To date, the contractor has conducted training sessions for more than 300 local government entities.

In addition to providing technical assistance, the contractor may also assist CalRecycle in implementing Regional application projects in which two or more eligible jurisdictions join together. Regional application projects can address obstacles to wider and continued sustainable use of RAC by local agencies. Local government agencies that typically have smaller paving projects due to budgetary issues or lack of proximity to RAC manufacturing facilities will benefit from the cost savings provided by a Regional application project. Through this program, the contractor will coordinate the participating agency projects and may provide design assistance, specification review, bidding/procurement, construction management, quality assurance, and quality control, as necessary. In addition, the contractor will provide training to each participating agency so that they can carry out future cooperative purchases on their own.

- **RAC Research:** Under this activity, CalRecycle will continue to conduct research of rubber paving applications in support of efforts to promote its use. Listed below are several RAC research proposals that CalRecycle is currently considering:
 - Further research on developing Performance Graded (PG) testing for field blended asphalt rubber binders. The large rubber particles in field blended asphalt rubber, will not allow it to be tested using current PG grading testing methods. This research will investigate the use of a new PG testing method that will test field blended asphalt rubber. This will ultimately increase the use of RAC by allowing field blended asphalt rubber binders to be included in the current PG grading system for asphalt paving.
 - Research in determining the rubber content in terminal blend binders. Determining the rubber content in terminal blend binders is a challenge so this research will investigate potential methods for validating the actual percentage of rubber in terminal blend binders.
 - Research in support of the Caltrans PG+5 binder project that is described in Activity 3 below.

Activity Funding

FYs 2017–18 and 2020–21.....	\$200,000 per fiscal year
FYs 2018–19, 2019–20 and 2021–22.....	\$650,000 per fiscal year

3. **Caltrans PG+5 Binder Project:** Caltrans is continuing to meet with state and local agencies as well as industry to refine the PG+5 binder proposal that would require the use of a minimum of 5 percent crumb rubber in all asphalt binder that is currently classified as unmodified. As a result, Caltrans has identified and prioritized research proposals that address potential issues that may hinder the implementation of their PG+5 program. CalRecycle has contracted with Caltrans to investigate the

first four of these research proposals. Caltrans has also identified additional research proposals efforts to investigate the performance and any potential impacts to the current rubber pavement technologies (i.e., field-blended asphalt rubber and terminal blend).

Activity Funding

FYs 2017–18-2019–20..... \$350,000 per fiscal year

4. **Research on TDPs and Non-Highway Technologies Using Waste Tires:** CalRecycle will continue to investigate TDPs and non-highway-related technologies that utilize waste tires to study and determine whether they are viable in the current tire market and if there are health and safety impacts that could adversely affect their use. Some of these applications may include identification of end-of-life options for various TDPs including turf applications and playgrounds; assessing the feasibility of using crumb rubber in molded, extruded, and other products; assessing market challenges and potential solutions for retread tires; and assessing market opportunities for various TDPs. To conduct this research, CalRecycle would partner with universities, state agencies, and the U.S. Environmental Protection Agency when appropriate.

Activity Funding

FYs 2017–18-2019–20..... \$250,000 per fiscal year

5. **Research on Landfill Emissions:** Many landfills use shredded tires as daily cover and in landfill gas collection systems, and/or dispose of significant amounts of altered tires along with municipal solid waste. Layers of tires in the waste mass may have an impact on landfill gas movement within, and external to, the waste mass. CalRecycle will continue to study the surface emissions and lateral migration of landfill gas in landfills that use and/or dispose of large quantities of waste tires to determine effects on and overall performance of landfill monitoring and control systems. For comparative purposes, the emissions from representative landfills that do not use and/or dispose of significant amounts of waste tires will also be studied.

Activity Funding

FY 2017–18.....\$250,000

6. **Research on Potential Effects of Recycled Tire Rubber:** Under this activity, CalRecycle may investigate potential health effects associated with the chemicals that can be released from specific products containing recycled tire rubber. This may include, but is not limited to, identifying various chemicals released; evaluating exposure through various methods of transmission; evaluating the potential impact on sensitive populations; identification and or implementation of personal monitoring or biomonitoring protocols; and other appropriate research and/or development of other applicable protocols.

Activity Funding

FY 2017–18\$650,000

FYs 2018–19 and 2019–20.....\$1,000,000 per fiscal year

- 7. Feedstock Conversion Assistance and Material Testing:** This activity proposes to provide manufacturers necessary technical assistance and other services to support feedstock conversion (using recycled crumb rubber rather than virgin rubber and/or other materials). The contract may also provide marketing and material testing support for the Tire Incentive Program.

Activities may include, but are not limited to: identifying prospective manufacturers and products suitable for feedstock conversion; developing marketing information and conducting marketing outreach to prospective manufacturers; securing interested manufacturers to participate in feedstock conversion activities; developing individual manufacturer activity plans and associated budgets for feedstock conversion, and qualifying processors to provide crumb rubber. Additionally, the contract may provide for working with manufacturers and securing appropriate technical expertise to execute individual manufacturer activity plans for feedstock conversion and providing technical assistance and follow-up to ensure production and sale of the Tire-Derived Products.

Marketing and material testing support for the Tire Incentive Program may include, but is not limited to: on-site sampling and laboratory testing of crumb rubber to ensure appropriate mesh size and particle distribution; identifying contaminants; and performing appropriate quality assurance and quality control checks.

Activity Funding

FYs 2017–18-2018–19.....\$500,000 per fiscal year

- 8. Tire-Derived Aggregate Grant Program:** This [program](#) provides funding to local governments, special districts, joint powers authorities, State agencies (including offices, departments, bureaus, and boards), California-based private, for-profit entities, non-profit organizations, and qualifying California Indian tribes for civil engineering projects utilizing TDA. To be eligible for the grants, projects must use TDA in one of a variety of approved civil engineering applications.

Activity Funding

FYs 2017–18-2021–22..... \$850,000 per fiscal year

- 9. Rubberized Pavement Grant Program:** This [program](#) will continue to be offered to cities, counties and qualifying California Indian tribes that fund public works projects located in California. The program is designed to help create long-term sustainable markets by focusing on first-time and limited-experience users of rubberized paving. This may include grants and incentives to further the purposes of the program. Funding for this program will be reduced due to additional spending authority expiring in FY 2019–20.

Activity Funding

FYs 2017–18 and 2018–19.....\$7,750,000 per fiscal year

FYs 2019–20-2021–22\$3,000,000 per fiscal year

10. Tire-Derived Product Grant Program: This program and its predecessors have successfully increased demand for TDPs, especially with local governments and school districts. It has also encouraged the appropriate substitution of recycled rubber for virgin rubber (also known as feedstock conversion). Typical TDPs include landscaping and playground loose-fill mulch, playground tiles, crumb rubber infill for all-weather sports surfacing, rubberized sidewalks and tree wells, floor and agricultural mats, and sports tracks.

Activity Funding

FY 2017–18.....	\$1,939,226
FYs 2019–20 and 2021–22.....	\$1,000,000 per fiscal year

11. Tire Incentive Program: This competitive incentive grant program is aimed at expanding demand for higher value-added products using crumb rubber from California-generated waste tires. Emphasis will be on products that have not benefited from the TDP Grant Program. Incentives may be targeted to three product types: new and existing tire-derived products, feedstock conversion, and use of fine (<50) mesh material.

Examples of possible eligible products include, but are not limited to: flooring underlayment, rubberized flooring, conveyer belts, calendared or compounded rubber, agricultural harvesting devices, various landscaping and garden products, various building products, various traffic devices, spacers, fencing, asphalt products (that are not eligible under other CalRecycle programs), paintings, coatings, etc. Asphalt products must contain a minimum of 5 percent crumb rubber in the binder or flux.

If legislation is enacted authorizing CalRecycle to implement a broader-based incentive program, then CalRecycle anticipates that implementation details would be discussed at public meetings/workshops prior to actual implementation. This could include but is not limited to subjects such as: activity funding levels; eligible entities and products; incentive levels; application and documentation processes; modification or elimination of existing market development grant programs; and modification of proposed research and technical assistance contracts to provide necessary support for a new incentive program.

Activity Funding

FY 2017–18.....	\$2,608,858
FY 2018–19.....	\$4,468,000
FY 2019–20.....	\$3,418,000
FY 2020–21.....	\$6,418,000
FY 2021–22.....	\$5,468,000

12. Tire Outreach and Market Analysis: This program intends to document market trends and conduct focused technical outreach to public and private procurement entities to increase demand and expand the use of waste tire-derived material in a variety of applications including higher value-added products. Staff and an independent contractor will provide:

- An annual in-depth survey and analysis of the waste tire and TDP markets in California and the associated *California Waste Tire Market Report*. This effort consists of a market analysis study to assess the market for California waste tires and influencing factors in the market, including providing information on the waste tire diversion rate, market trends, supply/demand balance and capacity, and other relevant market analyses. The analysis will culminate with the annual publication of the *California Waste Tire Market Report*.
- Focused technical outreach and education targeted at stakeholders such as federal, state, and local governments, school districts, and private entities that are in a position to procure tire-derived products and/or have the authority to specify them in future projects. The goal of this effort is to increase demand for TDPs, foster the application of new technologies, and expand the use of waste tire-derived material into a variety of applications, including higher value-added products. This includes monitoring and measuring the outcome of these efforts; developing case studies; conducting meetings, trainings, and webinars to targeted stakeholders (including two CalRecycle tire conferences); and maintaining and updating outreach and education materials.
- Identify end-of-life best management practices and markets for synthetic turf, infill, playground fill, and other TDPs.
- Research and testing to address identified gaps in TDP product data and specifications that pose a barrier to TDP market expansion.

Activity Funding

FYs 2017–18-2021–22.....\$300,000 per fiscal year

- 13. Tire Events:** CalRecycle will continue to hold tire workshops, forums, and/or trainings, as it has in past years. These tire business/product events will provide attendees with up-to-date information about waste tire management programs. They provide a venue to discuss all aspects of waste tire management, including hauling, manifests, cleanup, proper disposal, recycling technologies, and research and market development activities. These events also offer a venue for staff and stakeholders to meet and focus on issues of common concern. Wherever possible, events will be conducted in conjunction with related events organized by organizations such as the League of California Cities, California Public Works Association, and California State Association of Counties. In addition, staff combined the tire and used oil/household hazardous waste annual conference and the Recycling Market Development Zone conferences and training workshops into one combined three-year contract to provide efficiencies of scale and other benefits. All events also will be coordinated with CalRecycle’s Office of Public Affairs.

Activity Funding

FYs 2017–18-2021–22.....\$75,000 per fiscal year

Administrative Costs

Program Staffing

Tire-related activities are performed by a total of 73.1 positions within CalRecycle. The cost of staffing is approximately \$7.7 million.

Activity Funding

FYs 2017–18–2021–22.....\$7,725,000 per fiscal year*

**Staffing costs are estimates only, due to the unpredictability of costs for personnel services.*

Administration

Administration refers to the accounting of central management costs such as those pertaining to executive management, accounting, human resources, grants, business services, employee health and safety, small-office support, and statewide pro rata assessments (pro rata is the sharing of central service costs as mentioned in the State Administrative Manual, Section 8753, that generally serve all of CalRecycle, i.e., indirect or overhead costs, by funds other than the General Fund). Administration funding represents the distribution of these “indirect costs” to direct CalRecycle program activities that include the tire program.

Activity Funding

FYs 2017–18–2021–22.....\$3,422,000 per fiscal year*

**Administrative costs are estimates only, due to the unpredictability of costs for personnel services.*

Mandatory Contracts

Mandatory contracts include allocations for the following: Attorney General’s Office, Board of Equalization, Department of Finance, Foundation for California Community Colleges, and the Governor’s Office of Planning and Research.

Activity Funding

FYs 2017–18–2021–22.....\$1,288,000 per fiscal year*

**Estimate of costs for mandatory contracts*

Appendix A: Accomplishments Based on Performance Measures from the Five-Year Plan

This section contains performance measures from the *Five-Year Plan for the Waste Tire Recycling Management Program* with accomplishments reported after each performance measure. Data collected is for Fiscal Year 2015–16 unless specified.

Enforcement and Regulations Relating to the Storage of Waste and Used Tires

The enforcement program will use the following measures to evaluate success in achieving its objectives:

1. Inspections:

- a. Inspect all active major and minor permitted facilities at least once every 12 months.

As of February 28, 2017, there were 42 major and minor permitted facilities in California, and during the preceding 12 months, 34 (or 80.9 percent of them) were inspected at least once

- b. Inspect all active registered and exempt haulers located in California at least once every 24 months.

As of February 28, 2017, there were 1,507 active registered or exempt haulers in California, and during the preceding 24 months, 1,384 (or 91.8 percent of them) were inspected at least once.

- c. Inspect all active generators and end-use facilities located in California at least once every 36 months.

As of February 28, 2017, there were 20,390 active generators in California (excluding small quantity generators), and during the preceding 36 months, 18,519 (or 90.8 percent of them) were inspected at least once.

2. Noncompliant Tire Businesses:

- a. Take timely progressive enforcement actions on illegal, unpermitted waste tire facilities, and report the numbers of illegal sites remediated through the enforcement program.

From July 1, 2014 through June 30, 2016, CalRecycle staff initiated 86 tire enforcement actions., including 12 administrative complaints, 9 cleanup and abatement orders, 2 hauler registration denials, 1 hauler registration suspension, 1 hauler registration revocation, and 61 hauler streamlined penalty actions.

3. TEA Grant Program:

- a. Provide training to TEA grantee inspectors.

CalRecycle conducted eight (8) grantee roundtable meetings in the spring of 2015 and 2016. Subjects included inspection and enforcement procedures, tire enforcement legal issues, and general grant management and administration. CalRecycle conducted the 16th Technical Training Series held in October 2015 in Rohnert Park, CA, and will conduct the 17th Technical Training Series in April 2017 in Long Beach, CA. CalRecycle also conducted two training webinars for all TEA inspectors during June 2016 to implement changes in TEA 23, requiring that all TEA inspectors be trained and approved by CalRecycle prior to conducting waste tire facility inspections. These webinars were followed by individual in-office training sessions conducted by CalRecycle inspector liaisons and subsequent joint TEA/CalRecycle field inspections prior to each TEA inspector being approved by CalRecycle.

- b. Report on TEA grantee performance starting July 1, 2018.

CalRecycle will be developing TEA performance measurement criteria and procedures and implementing TEA grantee performance monitoring beginning with the TEA 25 (FY 18-19) grant cycle.

Hauler and Manifest Program

The Hauler and Manifest Program will use the following measures to evaluate success in achieving its objectives:

1. Reduce the number of registered waste tire haulers that do not submit manifests to no more than 5 percent of the active tire haulers by December 2016.

Of the 1,430 active waste tire haulers, 76 haulers failed to submit waste tire manifests by December 31, 2016, which is approximately 5.3%. This percentage may decrease as the waste tire manifests are required to be submitted to CalRecycle within 90 days from the load date, therefore a more accurate compliance assessment will be available after March 31, 2017, 90 days after the end of the calendar year.

2. Reduce the percentage of active tire haulers whose manifest form error rate is greater than 10 percent by December 2016.

During the period January 1, 2016 to December 31, 2016, there were 319 active waste tire haulers that had more than a 10% error rate on their manifest forms submitted to CalRecycle, this equates to approximately 22% of the total active tire haulers submitting manifest forms. For purposes of this evaluation, CalRecycle is only looking at those haulers who submit 100 or more forms in a year. This percentage may decrease as the waste tire manifests are required to be submitted to CalRecycle within 90 days from the load date, therefore a more accurate compliance assessment will be available after March 31, 2017, 90 days after the end of the calendar year.

3. Track the percentage of waste tire enforcement program cases for which the manifest system information has been used to assist CalRecycle staff and local enforcement agencies and report annually.

During the period July 1, 2015 to June 30, 2016, approximately 97 percent (35 out of 36) of the enforcement cases used manifest system information to assist in the enforcement actions. This data continues to demonstrate the importance of the manifest system in providing data to support the vast majority of CalRecycle's enforcement cases.

- a. Track the number of "204 Form" entries for which the end-use facility operators are required to report unregistered waste tire haulers transporting tires to their facilities as well as complaint forms received.

For the period July 1, 2015 to June 30, 2016, there were 533 complaints received from solid waste disposal sites, waste tire facilities, or other waste tire operators for haulers that may be violating the waste tire hauler and manifesting requirements.

4. Track the number of penalties levied for violations of the PRC pertaining to waste and used tire hauling and report annually.

During the period of July 1, 2015 to June 30, 2016, there were 36 enforcement cases resolved against tire haulers resulting in assessed penalties of \$41,125 along with \$78,950 in penalties held in abeyance pending offenders' future satisfactory compliance with waste tire laws and regulations.

5. Determine the quantity of waste or used tires being picked up or delivered each year in California by December 2016.

During the period January 2014 through December 2016, a total of 255,218,422 waste or used tires were picked up and 296,979,485 waste or used tires were delivered within the state. This indicates a yearly average of 85,072,807 waste or used tires picked up and 98,993,161 waste or used tires delivered. This is a sharp increase (29.9 million and 42.2 million, respectively) from the previous years (2012-2013), which showed an annual average of 55,150,826 waste or used tires picked up and 56,782,184 waste or used tires delivered. One explanation for this dramatic increase is that CalRecycle staff are reviewing and correcting unrealistic load amounts reported on manifest forms as well as haulers are becoming more educated in reporting the correct numbers.

Chart 1: Pick-ups and Deliveries of Waste/Used Tires within California

Year	Pick-ups in CA (PTEs)	Deliveries in CA (PTEs)
2014	80,497,250	94,296,471
2015	87,721,464	102,500,690
2016	86,999,708	100,182,324
Totals	255,218,422	296,979,485

Cleanup Program

The cleanup program will use the following measures to evaluate success in achieving its objectives:

1. Complete the short-term waste tire remediation projects referred by the Enforcement Program in a timely manner, and report the status of projects to CalRecycle on an annual basis.

The Del Norte Coast Redwood State Park is managed cooperatively by the National Park Service and the California Department of Parks and Recreation (CDPR). In March 2015, the CDPR reported illegally disposed material south of Crescent City off Highway 101 down a steep embankment on the Del Norte Coast Redwood State Park property. The illegally disposed material consisted of approximately 200 tires, some mattresses, and some general household goods and was spread between the highway and the ocean approximately 500 feet below. The CDPR Section Manager contacted staff and requested CalRecycle assistance with material disposal. The CDPR secured assistance with the North Bay Conservation Corps, Del Norte County Search and Rescue and the California Department of Transportation (CalTrans) to retrieve the materials.

The North Bay Conservation Corps provided four corpsmembers to cleanup and abate waste tires utilizing tire funding provided by the Local Conservation Corps Grant. CDPR committed to providing accommodations for the corpsmembers during the duration of the project. Del Norte County Search and Rescue provided training and supervision while the corpsmembers rappelled down the embankment to retrieve the tires and waste. CalTrans agreed to pull the debris to the top of the embankment with the use of a wrecker and install physical barriers to prevent further illegal disposal. The Program's contractor transported and properly disposed of the aforementioned debris at the nearest facility and provided rappelling equipment for the corpsmembers.

2. Increase the number of tires collected/remediated through Farm and Ranch Cleanup, Tire Cleanup, Tire Amnesty, and Local Conservation Corps grants by 10 percent annually.

Staff will continue to increase outreach to the tribal community and build awareness about available Farm and Ranch grants. Beginning FY 2013–14, ranking criteria for the Local Government Waste Tire Amnesty grants was revised to award a higher rank to applicants who work with Local Conservation Corps. The Corps provide staff resources to promote and collect at the amnesty events, which would increase the number of tires collected from the public. In FY 2016/17, ranking criteria for the Local Government Waste Tire Cleanup grants was revised in a similar manner for applicants who work with the Local Conservation Corps. The Corps provide additional staff resources to collect tires. With increased awareness about the Corps' ability to conduct tire cleanup activities, the number of applicants and tires could increase. Chart 2 lists the grant programs, the number of tires collected and the percent change between fiscal years.

Chart 2: Tires collected by Grant Program and Percent Change

Grant Program	FY 2012–13	FY 2013–14	Percent Change	FY 2014–15	Percent Change	FY 2015–16	Percent Change
Farm and Ranch Solid Waste Cleanup and Abatement	11,809	1,254	-89%	7,048*	462%	10,741*	52%
Local Government Waste Tire Amnesty		455,654		**		cycle open	
Local Government Waste Tire Cleanup		**		241,754		**	
Local Conservation Corps	***	***		15,294		72,584	374%

*Open grants. Additional tire collection expected.

**No amnesty/cleanup grants awarded this fiscal year.

***Local Conservation Corps did not receive tire funds this fiscal year.

Note: Reduced funding for the Local Government Waste Tire Amnesty and Cleanup grant programs will likely reduce the number of grants and tires collected.

Research Directed at Promoting and Developing Alternatives to the Landfill Disposal of Tires; Market Development and New Technology Activities for Waste and Used Tires

The market development program will use the following measures to evaluate success in achieving its objectives:

1. Increase the amount of wasted tires recycled to 75 percent by 2020.

CalRecycle is focused on implementing programs to achieve a statewide 75 percent recycling (as opposed to diversion) goal for all discarded materials, as required under AB 341 (Chesbro, Chapter 476, Statutes of 2011). Consequently, the Department is focusing mainly on recycling tires through reuse, civil engineering, and crumb rubber, as opposed to diversion through export, alternative daily cover (ADC), or tire-derived fuel (TDF). Based on this definition, the 2015 waste tire recycling rate is estimated at 35.8 percent, less than the 2014 rate of 38.0 percent and significantly down from the 2012 recycling rate of 44.3 percent.

2. Conduct research to address critical barriers to increasing markets for waste tire products and technologies (e.g., RAC PG+5 Issues and Turf field Health and environmental impacts) and incorporate research findings in education, marketing, and outreach materials to continue to promote these applications.

CalRecycle continues to make significant progress in promoting rubber paving applications such as RAC and rubber chip seals and, as a result, these uses continue to increase statewide. Research has played a key role in CalRecycle's efforts to increase the use of rubber paving applications. These

research efforts include investigation of the use of rubberized recycled asphalt pavement (RAP) into new RAC pavement, the effectiveness of warm mix additives to rubber pavements, life cycle cost analysis, and the development of rubber pavement and chip seals performance models.

CalRecycle's recent research efforts have been in support of the Caltrans Performance Grade (PG) +5 proposal. CalRecycle is collaborating with Caltrans to implement a series of research proposals to support the implementation its PG+5 proposal, which could address barriers and significantly increase the use of crumb rubber.

Research efforts have also enabled CalRecycle to make significant progress in the development of several long-term sustainable markets for TDA. These research efforts include the use of TDA as a vibration material in light rail applications, a lightweight fill material for embankment and landslide repair, civil engineering applications for use at landfills, a gravel replacement in on-site wastewater treatment (OSWT) systems and as a storm water drainage and treatment media.

The results of CalRecycle's research projects validated the benefits of using tire derived products and technologies, which allowed CalRecycle to use them in their outreach efforts and marketing and education materials, which could ultimately increase diversion of waste tires from CA landfills.

3. Increase the amount of waste tire material used in priority market segments, including RAC, molded and extruded products, civil engineering (transportation), etc.

According to the *2015 California Waste Tire Market Report*, RAC and other paving material derived from waste tires increased from 3.5 million PTEs in 2014 to 3.9 PTEs in 2015; molded and extruded products decreased from 0.8 million PTEs in 2014 to 0.6 million PTEs in 2015; and civil engineering applications decreased from 1.3 million PTEs in 2014 to 1.2 million PTEs in 2015.

To increase waste tire usage, CalRecycle offers TDA, rubber pavement, and tire-derived products grant programs along with a tire incentive program.

CalRecycle continues to address the lack of familiarity of use of waste tires in civil engineering applications, specifically RAC and TDA, by increasing outreach efforts through more focused technology exchange and outreach to local and state governments, contractors, and engineers in projects for which these technologies are viable. In fact, CalRecycle's past outreach efforts have resulted in the construction and design of numerous TDA projects, including expansion of the Bay Area Regional Transit (BART) and the integration of new rubber paving technologies such as warm mix into CalRecycle's rubberized pavement grant program. The success of these projects demonstrates that technical challenges and environmental concerns can be overcome to create long-term sustainable markets for both RAC and TDA.

Higher value-added products continue to be a focus area for CalRecycle. To assist in expanding this segment, CalRecycle pursues a three-point strategy.

- First, exposure and familiarity with the myriad of tire-derived products are increased through the Tire Outreach and Market Analysis (TOMA) contract. Various “lunch and learn” opportunities are offered for architects and purchasing managers for local governments and school district officials.
 - Second, local governments and school districts are supported in their desire to purchase and develop experience with various tire-derived products with Tire-Derived Product Grants that can reimburse most or all of the TDP cost. The intention is that once local governments and school districts gain experience with a TDP, they will purchase additional TDPs based on product performance and not rely on a grant.
 - Third, higher value-added products are supported by a Tire Incentive Program (TIP). The TIP provides an incentive to manufacturers to produce and sell products using crumb rubber (including fine ≤ 50 mesh material), which may be combined with other materials. This innovative effort is enhanced by a contract to provide technical assistance to manufacturers to produce products with crumb rubber or to increase the percent of crumb rubber used.
4. Support the increase in waste tire processing capacity to facilitate the 75 percent recycling goal.

Expanding capacity is a demand-driven decision for businesses; CalRecycle is actively working to expand the demand for products made with tire-derived materials. CalRecycle is accomplishing this by providing financial assistance through various market development grants, providing technical assistance, and performing market-based research. CalRecycle works with existing waste tire processors that have made the business decision to expand their existing capacity or establish an additional facility at a different location. CalRecycle also works with individuals seeking to start a new waste tire processing facility. Financial assistance is available from the recycling Market Development Zone Loan Program.

5. Complete and Report on the Recycled Tire Rubber in Turf Fields Research Contract with the Office of Environmental Health Hazard Assessment (OEHHA).

OEHHA has contracted with Lawrence Berkeley Laboratories to test all of the samples of synthetic turf and crumb rubber collected, and has held two scientific advisory panel meetings to discuss the study design and solicit recommendations from a panel of experts in statistics, toxicology, biomonitoring, and other fields related to the study. OEHHA has performed preliminary chemical extractions of crumb rubber samples and currently designing field sampling techniques in anticipation of sampling active fields in the summer of 2017. The final report will be available in mid-2019.

Appendix B: CalRecycle Border Activities

Used and waste tires continue to flow into Mexico through border entries, and a portion of these end up as waste tires that are illegally disposed along the California-Mexico border. The waste tires that end up along these borders are either dumped illegally at various sites or used for structural purposes in or near Tijuana, Mexico. They then cause environmental problems in the California/Mexico border region, including in the Tijuana River estuary. These waste tires are from many sources, including new tires originally sold in Baja California and used tires imported as commodities into Baja California from California, Arizona, and other states and then subsequently discarded after use.

To date, many entities—Mexican and United States federal agencies, state and local agencies, and non-profit organizations—have tried to deal with this problem, with most efforts focused on cleanup and remediation of large legacy tire piles and of the Tijuana River estuarine area. CalRecycle’s efforts in this regard, described below, entail enforcement support, hauler manifesting and compliance, cleanup, and research and technical assistance; tire recycling funds have not been used for activities south of the border. Collectively, these multi-party efforts, while necessary and productive, have not been sufficient to stem the problem on a long-term basis.

Based on more than 20 years of experience implementing tire-related management programs, CalRecycle believes a long-term solution to this problem will depend on Baja California’s leadership in developing a strong institutional framework, along with a financing mechanism, and implementing key regulatory and market development functions similar to those seen in California and other states, such as facility permitting and oversight, hauler registration and compliance, enforcement, cleanup and remediation, and research and market development. Based on its previous work with the University of California, Berkeley on a model tire management framework for Baja California, it is CalRecycle’s understanding that the Mexican federal and Baja California governments have made significant progress in the last few years in establishing an overall statutory framework for tire management. CalRecycle welcomes the opportunity to provide technical assistance to the government of Baja California as it engages in institutionalizing and financing a long-term management program.

At the same time, CalRecycle recognizes the need to better understand current used and waste tire flows in the border region and to collaborate with multiple stakeholders on identifying and prioritizing specific border projects where the use of tire funds may be most effective in contributing to long-term environmental protection in the region. Accordingly, CalRecycle entered into a contract with San Diego State University Research Foundation to accomplish these objectives and the final report will be available in December 2017. The remainder of this appendix lists other activities that CalRecycle has engaged in or that are planned to address these serious, shared risks to health and safety and the environment.

Waste Tire Enforcement Support Activities

California Highway Patrol Agreement to Support Enforcement Activities: CHP to continue its support to CalRecycle's field efforts in the areas of ground and aerial surveillance, covert and overt investigations, inspector security, training for state and local law enforcement officers, and roadside checkpoints to assist CalRecycle as well as local enforcement personnel in regard to waste facility and hauling violations. This effort includes a surveillance and enforcement support focus on illegal activities related to tire exports through California ports and in the California/Mexico border region.

ARB Surveillance Assistance: CalRecycle entered into an agreement with the Air Resources Board to continue to support field investigative efforts by CalRecycle tire enforcement staff and local enforcement waste tire grantees. ARB has extensive experience in assisting other agencies in the purchase, maintenance, monitoring, and use of both covert and overt surveillance equipment. ARB's expertise has aided, and should continue to aid, CalRecycle and local waste tire grantees in their efforts to deter or locate and prosecute those who illegally haul or dispose of tires, or illegal activities related to tire exports through California ports. Additionally, ARB will assist CalRecycle in identifying and procuring more sophisticated surveillance equipment for covert activities allowing for real-time remote monitoring and sensing.

Training Support for Waste Tire Inspectors and Managers: Each year CalRecycle offers its annual technical training series that includes sessions for waste tire inspectors and managers. Sessions include: 1) Inspection Skills & Investigative Techniques for Waste Tire Field Inspectors; 2) Basic Waste Tire Facility Permitting Overview; 3) Investigative Techniques and How to Involve Other Agencies in Tire Investigations and Prosecution; 4) Tire Evidence Collection and Case File Preparation; 5) Effective Report Writing for Tire Inspections; 6) Tire Surveillance Case Study; and 7) a tour of a local tire-derived product producer.

Hauler Manifest and Compliance

The Tire Hauler Compliance Unit, which includes the waste tire hauler manifest system, continues to be successful in having Mexican tire haulers register with CalRecycle. Currently, 26 waste tire haulers from Mexico are registered. The compliance unit has three Spanish-speaking staff, allowing easier and more receptive communications with the Spanish-speaking regulated community. Additionally, the unit has a separate toll-free waste tire hotline number for Mexico. In 2014, approximately 60 Mexican tire haulers were trained in California's waste tire hauler registration and manifest program's regulations and requirements. In 2015 and 2016, CalRecycle has held numerous Spanish/English tire hauler trainings, at the border and in southern and central California. The two border sessions seemed to be adequately attended by Spanish speaking haulers, however, staff continually observed that although the many of the tire haulers were advised of the trainings, on an average only one to five participants actually attend these presentations throughout the remainder of the state. Various reasons were given; the haulers were unable to attend these presentations after they performed their normally daily runs while others would not attend

due to the proximity of the training to county or city government buildings and/or law enforcement vehicles. The border trainings were held with the cooperation from the Association of Used Tire Dealers for the Mexican States of Baja California, Baja California Sur, and Sonora. Training in Mexico has not occurred for the past several years due to safety concerns across the border and travel constraints; however, staff has worked closely with the Mexican associations to provide the most current information.

Cleanup Activities

Large quantities of trash, tires, and sediment are transported by storm water from Mexico into the Tijuana River Valley and estuary, adversely impacting Border Field State Park south of San Diego and the Tijuana River National Estuarine Research Reserve. The Tijuana River Recovery Team is a consensus-based collaboration of more than 30 federal, state, and local government agencies, environmental and scientific community stakeholders, and funding agencies formed to address the broad range of issues affecting the watershed. To spearhead this effort, in 2010 CalRecycle developed and implemented a project with California State Parks to capture tires and solid waste currently discharged to Goat Canyon within Border Field State Park. The Goat Canyon cleanup project removed tires, trash, and sediment from the debris basin and installed a debris netting and capture system to collect tires and trash from Mexico and prevent their to discharge into the estuary. The project cost approximately \$2 million and included a related consultant study to evaluate the nature and extent of trash, waste tires, and sediment in the Tijuana River Valley.

In September 2012, CalRecycle again approved funding for a CalRecycle-managed cleanup of the Border Field State Park illegal disposal site, Tijuana River Valley and Estuary, and the Goat Canyon trash capture and removal system cleanout. This project was completed in January 2013 at a cost of approximately \$1 million. Refuse-laden sediment was removed from the basins and screened for future studies and use. The California Department of Parks and Recreation contributed \$300,000 to the cleanup project. CalRecycle is currently working to develop potential new cleanup project concepts in the Tijuana River Valley.

In addition, CalRecycle implements three local government cleanup grant programs that include projects in the border region. During FY 2014–15, \$370,086 in Local Government Waste Tire Cleanup Program grants was awarded in the border region (Imperial County, San Diego County, and the City of San Diego), resulting in the cleanup of 51,193 waste tires. This represents approximately 22 percent of the total cleanup grants awarded (\$1,715,882) statewide. During FY 2016–17, \$421,547 in Tire Cleanup Program grants was awarded to the same border region (Imperial County, San Diego County and City of San Diego), representing approximately 26 percent of the total cleanup grants awarded (\$1,589,369) statewide. The actual number of tires collected for this grant cycle will be unknown until the cycle closes in June 2018.

In FY 2012–13, the Local Government Waste Tire Cleanup and Amnesty Grant Programs were separated into two separate, two-year cycles. The programs were offered in alternating years, beginning with the

Cleanup Program; therefore, Waste Tire Amnesty Grants were not awarded in FY 2012–13. For FY 2015–16, \$73,131 was awarded for amnesty grants in the border region (Imperial and San Diego counties) to clean up an estimated 6,849 tires to date. This represents approximately 4 percent of the total amount of funds awarded for this grant cycle. The actual number of tires collected for this grant cycle is unknown until the cycle closes in June 2017.

During FY 2014–15, \$87,082 in Farm and Ranch Solid Waste Cleanup and Abatement Program grants was awarded in the border region (Imperial County), representing approximately 35 percent of the total amount of funds awarded for this grant cycle. An estimated 84 tires have been cleaned up to date, though the actual number of tires collected for this grant cycle is unknown until the cycle closes in April 2017.

CalRecycle also administers the Local Conservation Corps Grant Program. A portion of the tire funding received through this grant program has been used for waste tire removal in the border region. In FY 2014–15 and FY 2015–16, Local Conservation Corps located in Southern California provided crews to assist with Tijuana River clean-up efforts. In June 2016, the Urban Corps of San Diego County, along with Conservation Corps Long Beach, Orange County Conservation Corps and Los Angeles Conservation Corps collaborated with San Diego County on a 3-day waste tire clean up. In total, 3,692 waste tires have been collected to date.

Research, Bi-National Collaboration, and Technical Assistance Activities

Study on the Flow of Used and Waste Tires from California and Mexico: Mexico imports used tires from California that have a very short life span. Many of these imported tires are illegally disposed of and cause environmental hazards. For example, tires illegally disposed in the Mexican border region have caused environmental issues in California, from tires and other debris entering the Tijuana Estuary polluting the watershed to toxic smoke from tire fires in Mexicali dispersing into Calexico. The study completed in 2009 found that about 750,000 tires were taken across the border legally as used tires because there was a market in Mexico. An additional 75,000 tires were taken across the border illegally. A copy of the report can be found online:

<http://www.calrecycle.ca.gov/publications/Detail.aspx?PublicationID=1338> In December 2015,

CalRecycle has entered into another contract for an update to the Border Tire Flow Study. The final report will be available in late 2017.

Bi-National Program Participation: In the past, CalRecycle has participated with the Resource Conservation Challenge Border Group, California Biodiversity Council, Biodiversity Along the Border Committee, 2008 Border Governors Conference, and the Border 2012 Program. Currently, CalRecycle continues to participate with the Tijuana River Valley Recovery Team and looks forward to participating with the newly formed Border 2020 U.S.-Mexico Environmental Program to resolve the problems caused by illegally dumped waste tires along the border region.

The Border 2012 program (also known as the U.S.-Mexico Environmental Program) was a broad environmental collaborative with bi-national entities, coordinated by (and with funding from) the U.S. EPA. Important components of the Border 2012 program included community outreach, training, technical support, and cleanup of waste tire sites along the California-Mexico border. The program accomplished cleaning up of both the Innor and El Centinela scrap tire sites in Baja California, which combined contained more than 1.25 million tires. These tires were shredded and used as fuel in various cement kilns in Mexico. To date, more than 6.8 million tires overall have been recovered in the border region through the partnership. CalRecycle continues to collaborate with CalEPA and the Border 2020 program participants to help develop community outreach, additional training, and technical support to Mexican tire haulers, and training for CHP commercial officers who work along the California-Mexico border.

Currently, CalRecycle participates on the Border Region Solid Waste Working Group (SWWG). The [Solid Waste and Waste Tire Strategic Plan](#) identifies the objectives of the SWWG in the development and coordination of solutions to remediate problems associated with waste tires, solid waste, and excessive sediment threatening water quality and public health in the California-Mexico border region.

Technical Assistance for Baja California's Development of Integrated Waste Tire Management Plan:

In January 2011, CalRecycle entered into a contract with the University of California, Berkeley to provide technical assistance for a framework for cooperation among jurisdictions on both sides of the border to adequately address the continued illegal dumping of waste tires that cause problems in the border region. *Methodology for the Development of a Model Integrated Waste Tire Management Plan Framework for the State of Baja California* was published in November 2012 and can be found in English and Spanish: <http://www.calrecycle.ca.gov/Publications/Documents/1440%5C2012%5C20121440.pdf>

Sharing Environmental Education Materials in the Border Region: SB 772 (Ducheny, Chapter 214, Statutes of 2005) required CalRecycle to work with Mexico in areas related to waste and used tires, and environmental education and training. In coordination with the CalEPA and CalRecycle's Office of Education and the Environment, the tire program developed a mechanism with Mexico's Secretariat for Public Education, Baja California's Secretaria de Protection Ambiental, and Baja California's Education System allowing for bi-national distribution of CalEPA's environmental education curriculum titled *Conservation and Pollution Prevention at a Shared Border* (Adams, Linda S., 2007). This elementary school curriculum includes lessons that are relevant to prevalent border conditions such as land, water, and air pollution, and is consistent with existing environmental education and training principles in Mexico. In 2007–08, English and Spanish versions of the curriculum were provided to 12,000 border teachers, educators, and schools. This curriculum contains scientific and resource-based lessons regarding the border area, with key steps toward environmental sustainability.